

PROJECT MANAGEMENT CONSULTANCY FOR IMPLEMENTATION OF SMART CITY MISSION PROJECTS FOR MANGALURU CITY

DETAILED PROJECT REPORT – IMPLEMENTATION OF ESMART SCHOOLS IN ALL GOVERNMENT SCHOOLS - ICT



ISSUE AND REVISION RECORD

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ABBREVIATIONS

ABD	Area Based Development
BEO	Block Education Office
DPI	Department of Public Instruction
DPR	Detailed Project Report
GHS	Government High School
GLPS	Government Lower Primary School
GPUC	Government Pre-University College
GUPS	Government Upper Primary School
ICT	Information and Communications Technology
LMS	Learning Management System
MCC	Mangaluru City Corporation
MSCL	Mangaluru Smart City Limited
NCERT	National Council of Educational Research and Training
O&M	Operation and Maintenance
PC	Personal Computer
PMC	Project Management Consultant
RFP	Request For Proposal
SATS	Student Achievement Tracking System
SCP	Smart City Proposal
SI	System Implementer
SPV	Special Purpose Vehicle
ToT	Transfer of Technology
USB	Universal Service Bus

LIST OF REFERENCE CODES, STANDARDS, AND GUIDELINES

The following documents have been referred to in preparing the document

1. DPR
 - http://www.aps.gov.in/procurepdf/DPR_TemplateV1.2%20-7.pdf
 - http://mhrd.gov.in/sites/upload_files/mhrd/files/Student-Teacher%20Ratio.pdf
 - http://www.ncert.nic.in/programmes/education_survey/index_education.html
2. Educational indicators proposed by the National Council of Educational Research and Training (NCERT):
 - http://www.ncert.nic.in/programmes/education_survey/index_education.html
3. Sports Infrastructure
 - Inputs received from Mr. Pradeep D'Souza, Deputy Director, Department of Youth and Sports.

EXECUTIVE SUMMARY

Government schools need to implement smart cities strategies and approaches to take better advantage of ICT and improve the performance of students and teachers in the education domain. The detailed project report aims to address the rationale behind implementation of smart classrooms in government schools under the Mangaluru Smart City Project.

The objective behind the implementation of smart classrooms is to ensure the integration of information and communication technologies (ICTs) in education, especially for improving access to education, enhancing the quality of the teaching-learning process, training of teachers and strengthening educational planning and management.

The project will be implemented in all the government schools present in the ABD area of Smart City Mangaluru for a period of three years including the operation and maintenance of both hardware and software of eSmart solution. The O&M would also include the training on a periodic basis for the academic staff as well as teachers of the school.

The content of the learning management system would be updated over a period of time based on the change in education syllabus as well as feedback given by teachers and students.

The budget allocated for implementation of eSmart school in government schools which fall under ABD area is 5 crores for a period of five years.

Outcomes of the ICT in classrooms:

- Large repository of education online resources in the classroom.
- Education will be imparted through digital media such as presentations, videos, etc.
- Difficult topics can be better understood with the help of multimedia rather than chalk and talk.
- Learning would become more pleasant, especially for the visual learner and better understanding would lead to better performance by the student.
- A Smart School environment helps to democratize education.
- The Smart School programme provides equal access to learning opportunities.
- It may enhance creativity, critical thinking, problem-solving, decision-making and learning along with the communication and collaboration attitude.
- It teaches new tools for working such as ICT and information literacy.
- If the nation requires a well-educated workforce, education has to be delivered to more people and this can happen through education technology.

2 Project Overview

2.1 Title of the Project

Implementation of eSmart schools in all government schools under ABD of Mangaluru Smart City.

2.2 The flagship of the Project

The project falls under the Area Based Development (ABD) Projects of Mangaluru Smart City.

2.3 Eligibility Tests

- There are two types of Schools that run under Government Aid – Primary and Secondary schools.
- The number of primary schools is thirty-one and secondary schools are twelve in Mangaluru City.
- The list of schools is obtained from the link <http://www.schooleducation.kar.nic.in/html/binfra.html>. Navigate to Mysore Division ☐ Dakshina Kannada and the list is downloaded under the primary school list and secondary school list. The list is given in Annexure A.

For the implementation of eSmart schools in government schools, a number of critical factors have taken into consideration before investing in hardware and software infrastructure. The following are the educational indicators proposed by ¹the National Council of Educational Research and Training (NCERT). The details of each of the indicators are given in Annexure B:

1. Indicators of Demography (School-Age Population)
2. Indicators of Access to Schooling
3. Indicators of Participation
4. Indicators of Equity
5. Indicators of Infrastructure
6. Indicators of Quality Inputs
7. Indicators of Finance
8. Indicators of Efficiency

A survey was carried out based on the following indicators:

1. Indicators of Infrastructure
2. Indicators of Quality Inputs

2.4 Project Initiator Details

Mangaluru Smart City Limited is a public limited company which is a special purpose vehicle for undertaking smart city project in Mangaluru City.

2.5 Name and Job Title of the Key Contact Person

Managing Director, Mangaluru Smart City Limited (MSCL) and Commissioner, Mangaluru City Corporation (MCC).

2.6 Contact details

Mangaluru City Corporation
M.G. Road, Lalbagh, Mangaluru - 575003

¹ http://www.ncert.nic.in/programmes/education_survey/index_education.html

2.7 Implementation Agency Details

The implementation agency will be awarded the project of 'Implementation of eSmart school in all government schools' under the ABD area of Smart City Project through two bid cover tender process.

2.8 Project Implementation Location

The project will be implemented in government schools under the ABD area of Smart City Project.

2.9 Project Vision

The eSmart solution taught in government schools will be a complete solution intended to help teachers in teaching students so as to improve student's academic performance with the help of an eSmart solution through ICT.

The eSmart solution will provide teachers with immediate access to multimedia content and instruction materials in compliance with the Karnataka State Board curriculum. It will help teachers to ensure that every child is maintaining interest in studies and student's positive interaction in the classroom is enhanced.

2.10 Project Goal

- To establish and facilitate the environment to promote the usage of ICT Government Schools. Critical factors of such an enabling environment include widespread availability of access devices, connectivity to the Internet and promotion of ICT literacy.
- To enable every student to become "Digitally Literate".
- To train the school teachers in the effective delivery of education by using IT tools for teaching with the latest methodologies & aids.
- To ensure the availability of quality enrichment of existing curriculum by employing ICT tools for teaching and learning.
- Compulsory ICT Education for all students.
- Promote critical thinking and analytical skills by developing self-learning. This shall transform the classroom environment from teacher-centric to student-centric learning.

3 Project Overview

eSmart School Project is a Smart City Initiative where ICT Infrastructure of the school is to be converted into the smart classroom so as to make digital education available to students for improving their learning curve in education.

3.1 Stakeholders

- Students
- Government Schools identified under ABD areas
- Academic Staff of Government Schools identified under ABD areas
- Mangaluru Smart City Limited (SPV)
- Department of Public Instruction
- Block Education Office of Two wards –Mangaluru North and Mangaluru South
- Parents / Guardians

3.2 Improvement Envisaged for the Schools

- Proper Civil Infrastructure for the setup of the smart classrooms should be in place, the present civil status of government school should be surveyed by civil authorities whether minor repairs can be undertaken so as to do electrical fittings in the school.
- Proper Lighting mechanism should be in place so as the students don't get spectacles at a younger age while accessing the computer for long hours.
- The project should be rolled out in phases based on the health condition of the school; readiness of the school as well as block education office.
- The officials of the block education office should keep the record of the ICT inventory issued to the school.
- Service and support required for the maintenance of IT infrastructure are to be readied to ensure system reliability and availability.

3.3 Current Scenario

- Lack of civil Infrastructure in the schools.
- Absence of sufficient lighting.
- Lack of basic amenities such as ceiling fan and water purifier. Most of the Computers, water purifiers, Ceiling Fans, and notebooks are donated by PSU organizations such as State Bank of India, Canara Bank; private organizations Mphasis HP, Educomp and NGO and charitable organizations.
- Poor Student Enrollment and Teacher to Subject to Classroom ratio.
- Multiple e-governance initiatives across the entire Karnataka State related to education in different silos where end-user like teachers and education officials need physical visits to upload statistical information.
- Data entry of attendance of teachers, students, and students' performance is done on Student Achievement Tracking System <http://sts.karnataka.gov.in/STS/#> It is an online Portal where teachers have to periodically update the details about the student's attendance and student's performance based on the template given.

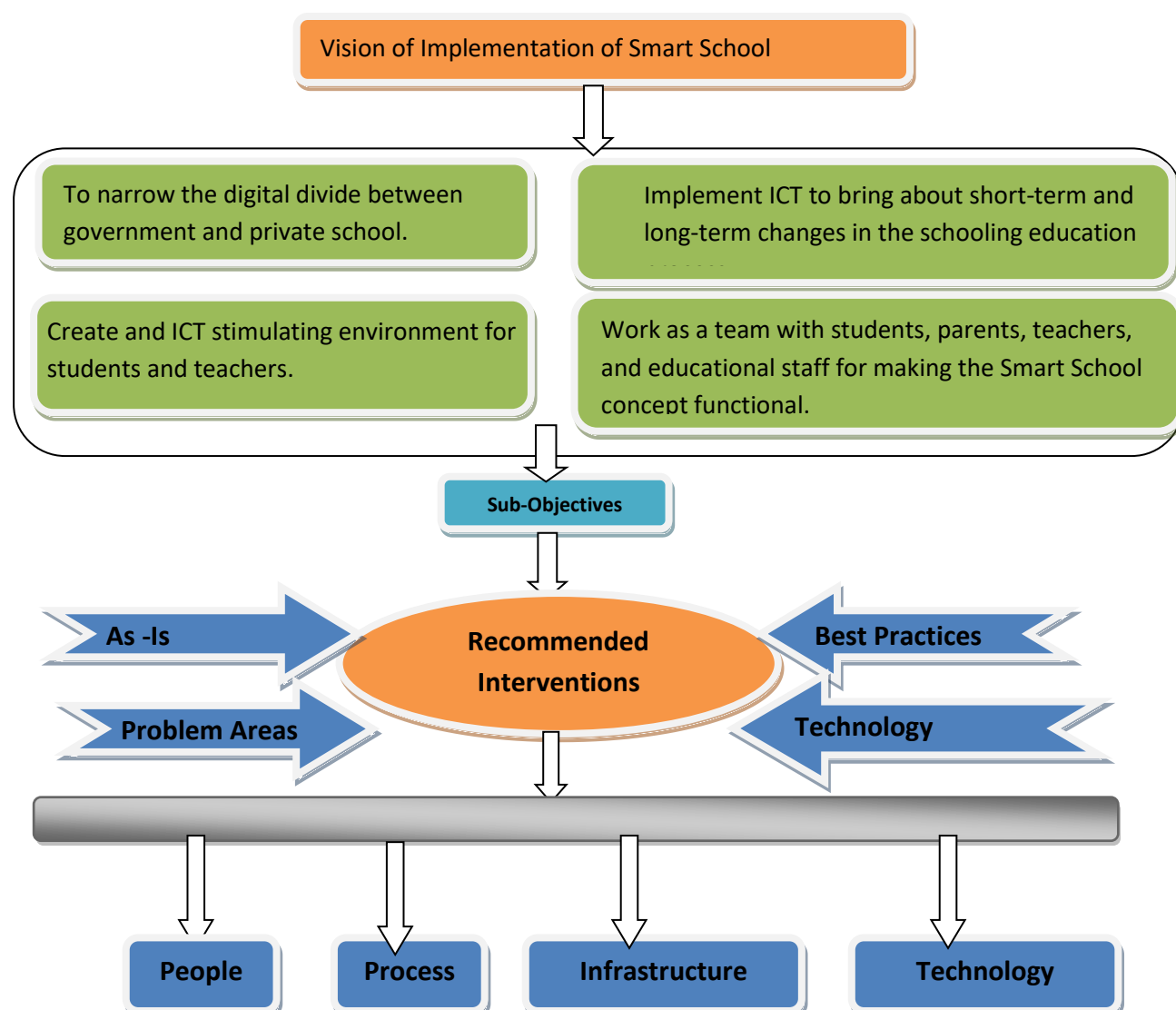
3.4 Sources of Funding

Table 1. Funding Source

Smart City Component Name	Budget Estimated in the Smart City Proposal in INR
Implementation of eSmart schools in all government schools-ICT package	5 Crores

4 Project Details and Implementation Model

4.1 Approach & Methodology



4.2 Proposed Interventions

4.2.1 Process and Technology

Step 1: Approval by MSCL (SPV) in consultation with the local Department of Public Instruction and Block Education Offices of both wards - Mangaluru (North) and Mangaluru (South) for selection of government schools where smart classroom are to be setup.

Step 2: Meeting with academic staff including principals, headmaster and teachers of the proposed government schools whether they are ready for the acceptance of ICT mode of teaching in the school.

Step 3: Inspection of Physical infrastructure of the school, taking into account external factors such as electrical fittings in the school, the current state of the building, water flooding.

Step 4: DPI and BEO should provide the statistical data of the number of students enrolment and drop out ratio, should give their feedback and note whether the implementation of smart classroom in schools should be done or not.

Step 4: Survey of the new government schools if recommended by MSCL (SPV) based on inputs of DPI and BEO by both PMC and SI.

4.2.2 People

While approving the implementation of ICT in this schools, the local education departments i.e. Department of Public Instruction in Mangaluru and Block Education Offices of both Mangaluru North and Mangaluru South Wards and MSCL(SPV) are to be aware of the following factors :

- Current State Infrastructure of 13 schools identified under ABD area
- Student-Teacher Ratio
- Teacher to Subject Ratio
- Enrolment of Students
- Drop out ratio of Students
- Readiness and prerequisite knowledge of how to operate the computer by Teachers.

4.2.3 Non-IT Infrastructure

Electrical Wiring and Equipment

The selected SI will have to undertake electrical wiring and earthing for all electrical and IT equipment like PCs, LED Lighting, Fire Extinguishers and a Common UPS catering the capacity for smart classrooms.

4.3 Implementation Strategy

- LMS will make the subjects and topics taught by teachers accessible.
- The education content comprising of animation videos, presentations, worksheets will be hosted in the environment where SI allows the easy updation of the content.
- Internet Connectivity should be available so as to access the digital content.

4.4 Scoping Study

Table 2. Roll out Activities

Sr. No.	Activity name
1.	Identification of Government schools under the ABD area for eSmart school implementation.
2.	Approval of the same by Block Education Officer of both Mangaluru North and Mangaluru Southward.
3.	Survey of 13 government schools under the ABD area for eSmart school implementation.
4.	Quotations from Leading Vendors providing Education software and hardware required for set up of smart classroom.
5.	Preparation of Draft DPR for eSmart school implementation.

Table 3. School Information

S.No	School	Students	Teachers	Grade
1.	GUPS, Basthigarden, Ward No-41	17	2	1,2,3,4,5
2.	GUPS, Neereshwalya, Ward No-45	14	3	1,2,3,4,5,6,7
3.	GUPS, Pandeshwara, Ward No-46	77	4	1,2,3,4,5,6,7
4.	GLPS, Hoigebazar, Ward No-57	16	2	1,2,3,4,5
5.	GHS, Hoigebazar, Ward No-57	40	7	8,9,10
6.	Government Practicing HS, Mangaluru, Ward No-46	37	8	8,9,10
7.	GUPS, Bunder (Urdu), Ward No-44	69	4	1,2,3,4,5,6,7
8.	GHS, Bunder (Urdu), Ward No-44	70	7	8,9,10
9.	Primary School, Jyothi Circle, Balmatta, Ward No-40	35	4	1,2,3,4,5,6,7

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10.	Secondary School Jyothi Circle, Balmatta, Ward No-40	103	8	8,9,10
11.	GUPS, Bolar, Ward No-58	52	4	1,2,3,4,5,6,7
12.	GUPS, Bolar West (Urdu), Ward No-58	25	3	1,2,3,4,5,6,7
13.	Govt High School Car Street Ward No-43	44	8	8,9,10
TOTAL		599	64	

Summary	No. of schools	Students	Teachers
Primary School (1,2,3,4,5). One school having 14 student strength has been considered into this category	3	47	4
Primary and Middle (1,2,3,4,5,6,7)	5	258	22
High School	5	294	38
TOTAL	13	599	64

College	Students	Teachers	Grade
GPUC Balmatta Ward No-40	910	19	11,12
GPUC Car Street Ward No-43	272	12	11,12

The survey was done against the following indicators:

1. Type of School
2. Standards Taught
3. Subject Taught
4. Total number of Teachers
5. Total number of students in each school
6. Total number of Boys and Girls in each standard
7. Total number of toilets for boys and girls
8. Drinking water Facility
9. Current status of ICT in schools
10. Observations

A survey for thirteen schools and two girls pre-university colleges was done and is given in Annexure C.

4.5 Process Reengineering

After the survey done by PMC with MD, MSCL and BEO officials it was decided to consider the possible merging of the schools:

1. Merging of GUPS Bolar West (URDU) (Students: 25) with GLPS Hoigebazar (Primary) (Students: 16).
2. Merging of GUPS Basthigarden (Students: 17) with GUPS, Bunder (URDU) (Primary) (Students: 69)

The merging may facilitate the effective up-gradation and subsequent use of facilities by the students and teachers. BEO officials to decide based on government schemes, constraints, and guidelines.

Sr. No.	Activity Name	As-Is Process	To- Be Process
1.	Online Education Content	Textbooks can be downloaded online through http://ktbs.kar.nic.in/New/index.html#!//	With the introduction of e-content in smart classrooms, supporting study material such as animation videos will be available to students for tough topics.

Sr. No.	Activity Name	As-Is Process	To- Be Process
2.	Teachers Information Software	Teachers' information software http://ktbs.karnataka.gov.in/TeachersInfo/ serves as a repository about teachers where service record of all government teachers is stored.	Student Management Software will provide information about subjects and topics taught by the teacher in class.
3.	Student Tracking System	Student Achievement Tracking System http://sts.karnataka.gov.in/STS/# is an online Portal where teachers have to periodically update the details about the student's attendance and student's performance based on the template given in the portal. The portal is an intermediate entity between school academic staff and education	System Implementer SI can develop Student management software which will use the same format used by teachers to upload about the student's details, attendance, and academic progress report. The portal will act as an intermediate entity between school academic staff and parents and guardians.

4.6 Communication Strategy and Plan

Table 4. Communication Strategy and Plan

Audience	Messages	Channel Media	Frequency	Responsibility	Feedback Mechanism
MSCL	Update the status of the progressive implementation of eSmart school	Meetings / Status Update Report	Monthly	PMC, SI	Incorporate the suggestions as received through proper official communication
Head Master / Teacher	Requirement Gathering for developing education content that is supporting animation videos, worksheets, quiz with respect to Karnataka State Board curriculum	Requirement Gathering Form for Client	During the development of the education content software	SI	Incorporate the suggestions as received through proper official communication
Head Master / Teacher	Conducting Training for teachers on how to operate both Hardware and Software of smart classroom	Presentation/Hands-on /Training Material	On-demand Basis	SI	Training Feedback Form
Head Master/ Teacher	Update the education content as and when required by the school	Change/Update Request Form	On-demand Basis	SI	Incorporate the suggestions as received through proper official communication

4.7 Capacity Building and Training Plan

- The SI will arrange training, both initial and later on refresher training on a quarterly basis to the teachers of the schools on usage of supplied Multimedia Educational Digital Content, operations of all the hardware installed in the designated schools.
- Provide training on usage of supplied Educational Digital Content, operations of all the hardware installed in the schools to all the subject teachers at the concerned schools and also provide subsequent refreshers training as and when required as per the following details:

Training requirements for the adoption of smart education

- Training to the teachers in each school needs to be provided by the SI. Teachers who will undertake the training will be selected by the principal of the respective school.
- Post the installations of the hardware and software required for the smart classroom, at-least 3 days of initial intensive training should be conducted by the SI covering all schools to ensure maximum adoption of the smart classroom in each school.
- Post these training, independent evaluations will be carried out by Block Education officers to understand the readiness of the teachers in each school in the adoption of the smart teaching mechanism.
- In case BEO officers find out there are still training requirements based on the above evaluation, the SI needs to undertake further training.
- In addition to the above, at least 3 days of refresher training needs to be conducted by the bidder in every quarter.

4.8 Solution Proposed

Learning Management System will include the costing of hardware and software required. The cloud-based solution is proposed which is free of cost for a period of three years. No hosting of separate LMS solution is required in CCC.

4.8.1 Smart Classroom setup

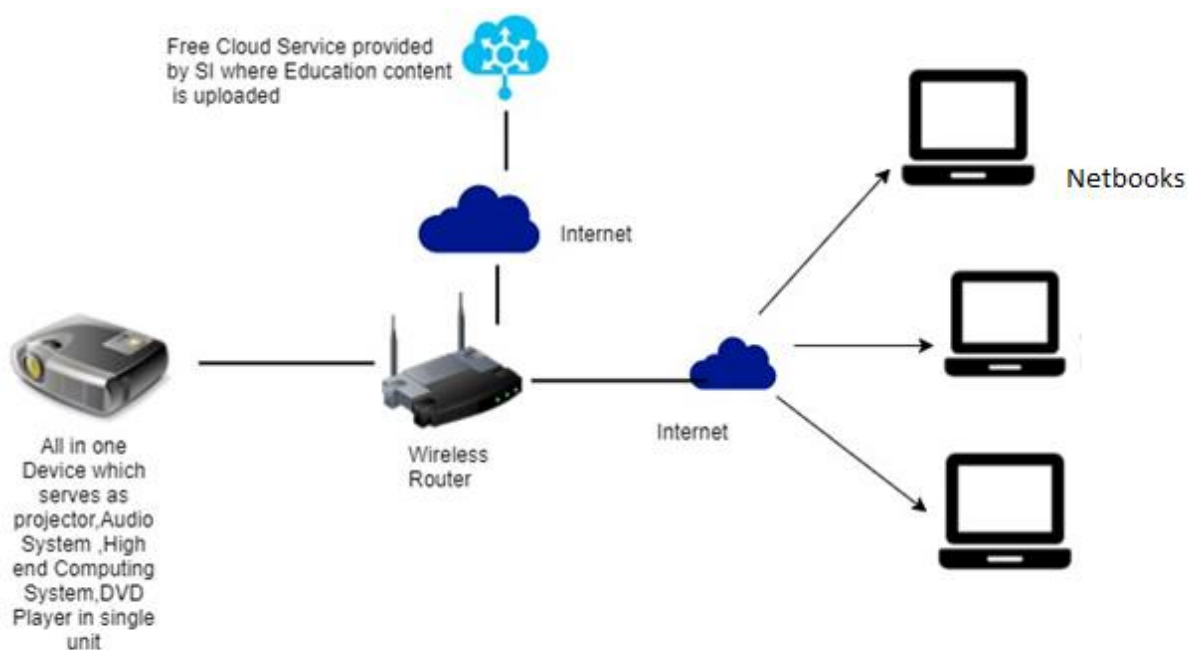


Figure 1: Smart classroom Setup

- A netbook with Education App
- All in One Display Device preloaded with Multimedia Learning Modules
- Access Point cum Wireless router
- Charging Cart (for safe storage and charging of Netbooks)
- UPS for power back up

There is no dependency on the deployment of any smart school devices in Command Control Centre.

4.8.2 Functional Module Description

Education Management Console :

The web-based Netbook management console makes it easy to deploy netbooks across the organization while maintaining fine-tuned control of these devices.

Key features of device management, a simple cloud management console are:

Create User Groups: With the user groups feature, one can create different sets of users to which one can then apply policies, apps, and settings.

Track Assets: The track assets functionality allows assigning devices to users in order to get configuration and usage reports to see exactly how each user is using their device.

Pre-install and block apps: The management console allows pre-install apps and extensions on Netbooks, as well as blacklist or white list specific apps, extensions and URLs.

Control User Access: This feature gives complete control over who uses your organization's devices. One can prevent outside users from logging in on the devices, disable the Guest Mode feature, or even designate only specific users in your organization to be able to use Netbooks.

Configure Network Access: Get users connected and secure by setting their network and security settings through the management console.

Customize User Features: This feature allows customizing Netbooks for different users with settings such as bookmarks and app sync, as well as setting custom themes.

Education App:

Education App is a core suite of productivity applications that build teamwork and enhance learning. These tools are collaborative, customizable, free, secure, without ads and usable on any device. All of these applications exist completely online (or in the cloud), meaning that all creations can be accessed from any device with an Internet connection.

Online Classroom

An online Classroom is a tool that provides a platform for communicating with students, assigning and collecting work, and providing learning resources. It allows sending messages, assigning, collecting, and grading work, and sharing learning material in one single place. The classroom also integrates with other components to create a feature-rich toolset.

It provides teachers with an avenue to collect assignments effortlessly and provide real-time feedback to the students and direct their learning in right direction.

Multimedia Content:

The Solution comprises of a wonderful mix of interactive digital content stored inside the All-in-One Device. These include the following:

2D/3D Content Modules:

A variety of animation and audio-video based modules, which are developed on concepts across multiple subjects in order to enhance interest levels of the students

Educational Videos: A wide collection of educational videos developed to explain concepts of science in a very simplistic and contextual manner. These videos use easily available elements to explain any given concept in science, thereby encouraging the student to explore new concepts with ease and confidence

The above multimedia content is available in a grid format, wherein content has been segregated for every classroom and the respective subject area within the class selected. This allows easy navigation through the content across various topics for the teacher while teaching

Hardware Devices Required:

Netbook: Designed for learning, made for the classroom

- Lightweight, durable laptops designed for students.
- Boot up in less than 10 seconds and the battery lasts the whole day.
- Designed to be simple, affordable, secure and shareable.
- Easy to manage - can set up in minutes and centrally manage 10 or 10,000 devices across the school, district, and region.
- Students can share a single device but still have a personal experience just by signing in.

All in One Device:

- Learning tool for the proposed solution is based on an integrated and innovative technology platform, called Integrated Community Computer. It combines all these hi-tech innovations into one compact unit, which is portable, single cable device, internet ready and converts any wall into an interactive wall. The teacher is the core of this device and innovations around it. It enables a teacher to focus on teaching rather than technology.

Features of All in One Device

- **Technology Integration:** Multiple Components Integrated into a Single Compact Unit including Large Screen TV
- **Ease of Setup & Use:** Being a Single Cable Plug-in Device, it is very easy to Setup.

- **Interactive Multimedia Content:** Pre-loaded modules of Interactive Multimedia Content
- **Image Size:** Screen Size can go up to 300 inches diagonally
- **Costs and Maintenance:** An Integrated device which requires low maintenance

Network Architecture

- The internet connectivity for the solutions will be provided through wireless or wired connections.
- The IP of the netbook used in the smart classroom will be whitelisted in the Wi-Fi router placed in the school.
- No academic staff/ students will have personal access to the Internet.

4.8.3 Deployment Architecture

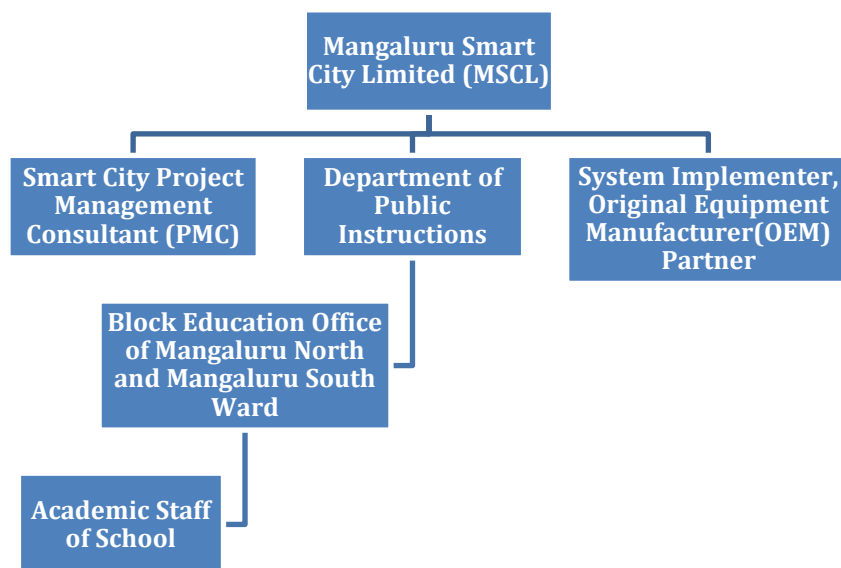
Each Smart classroom will have all in one device and Wi-Fi router, charging cart and netbooks and IT connectivity.

4.8.4 Security Architecture

- The IT devices used in the solution,
 - will undergo hardening.
 - will have the least privileged access
- The latest stable version of the necessary OS and software should be updated and installed.
- Ensure proper backups and system and event logs are generated as per the defined SOP’s.
- Monitoring the health of the system.
- Report any intrusion/incident that occurred while using the system and report to the concerned agency.

4.9 Organization Structure

(i) Proposed Organization Structure



(ii) Staffing and Deployment Strategy

The selected SI will have to deploy personnel at the site in case of any event related to software and hardware occurs. If any of the IT devices in the classroom becomes non-functional, the SI with his OEM’s support should replace the same within stipulated time.

4.10 Monitoring and Evaluation

Monitoring and evaluation (M&E) is a method that helps improve performance and get results. Its goal is to improve current and future management of outputs, outcomes, and impact. It is mainly used to assess the performance of projects, institutions, and programs set up by governments. It establishes links between the past, present, and future actions.

Table 5. Monitoring and Evaluation

	Indicator	Definition	Target	Data Source	Frequency	Responsible	Reporting
Goal	Percentage of students passing to the next standard	Divide the number of students who passed the exam by the number of students who took the exam to find its pass rate.	100%	Enrollment of students in the school	Annual	Block Education Office	Student Academic Performance Report
Outcome	Completion of Syllabus in school on time	Divide the Total number of topics taught by the teacher by the total number of topics in each subject as per the syllabus	100%	Time table and subjects taught by Teachers	Every month	Academic Staff of School	Time Table - Work Allotment Report Teacher-wise
Outputs	Number of students attending the classes	Total number of days student present in the school	90%	Attendance report	Every day	Academic Staff of School	Student Attendance report

4.11 Strategic Control

- The system performs functions and acts in conformance with the requirements and provides desired outcomes (deliverables/Service Levels).
- The application system and the databases are designed, developed, installed and managed exactly in conformance with the procedures laid down for delivery of services.
- The security of the overall system is of the appropriate order following international standards.
- Any change required to the solution is with specific approval of competent authority MSCL in this case.
- The outsourced vendor does not have access to the system beyond prescribed authority as defined by MSCL.

- The processes, including legal enablement and capacity within the government, are in place to take over the entire system in case of an exit of the vendor (premature or planned).
- There is an ability to make necessary mid-course changes to the system.

Strategic Assets

- The software application, Data, Databases and Core Infrastructure.
- The data and processes applied during design and implementation.
- Assets and tools that help in managing the application.
- Intellectual Property created during the lifecycle of the project.

For all phases, the following common principles should be used to retain Strategic Control,

- Project tracking - For this, project planning tools can be used. The SI should share the tool and status dashboard with the CTT to ensure transparency.
- Review Process – All phases should have peer and management reviews. All documents, design, and code should be permitted after critical review of the same.
- Phase-End Approval – Each Phase should be formally approved as completed by the MSCL. The MSCL should monitor these approvals.
- Configuration Management process to ensure that all changes (in code and in documents) are version controlled. All version increments should be marked with the name of person making change, reason for change along with date and timestamp.
- Release Management process should be adopted at all suitable phases.
- Use of Standards – Project processes and controls should be based on standards
- Security Provisions – The vendor should abide by well-defined security processes. Standards like BS7799 / ISO27001 may be used as benchmarks.
- Documentation – Rigorous documentation should be followed.
- Project repository to store all related documents/artifacts/version control
- During the Bid Evaluation, MSCL should be involved in order to ensure that Strategic Control objectives are met.
- Disaster Recovery and Business Continuity Planning – This should be tracked as a part of the development of Strategic Control. Appropriate geographical distribution, backup planning, and regular risk assessment should be carried out under this.

4.12 Assumptions & Risk Management

Table 6. Risk Assessment Matrix

Risk	Stakeholders involved	Description of Risk	Risk mitigation measure
Change in Teaching Process	Academic Staff	With the introduction of the concept of the smart classroom, teachers might object that it might affect their routine process of teaching.	Proper Capacity Building and Training plan will be in place.
Management of IT assets of smart classrooms in the school	Block Education Office of Mangaluru North and South Ward	The officials of the Block Education Offices might object to the maintenance of both IT hardware and software supplied to schools as they will be the common link between the school and the selected SI.	Technical Support Escalation Matrix will be in place so as to contact SI/OEM in case of any disruption or failure in IT service.
Power Outage	Teachers, Students	Due to Power failure, IT devices	UPS should be provided in

Risk	Stakeholders involved	Description of Risk	Risk mitigation measure
		might not work in a smart classroom.	school.
Poor Internet Connectivity	Teachers, Students	Due to poor IT connectivity, online access to education content might not be available.	Offline education content should be stored in the device present in the classroom by the SI.
Poor Physical Infrastructure	Block Education Office of Mangaluru North and South Ward and Academic Staff of the school	Repair of the infrastructure of the school buildings including leaky roof, water leakage, old electrical wiring, and school furniture.	Before setting up the smart classroom, repair for the necessary electrical fittings of the classroom are to be ensured.
Misuse of the Wi-Fi IT assets issued to school	Academic Staff of the school	Internet and IT assets might be used by staff for personal usage.	Whitelisting of laptop/desktop IP should be whitelisted in the internet router. Stringent IT policy should be laid down. Logs of the router should be checked by SI so as to check the Internet usage by the school.

4.13 Project Costs and Financing

Table 7. Cost Estimate

Sr. no.	eSmart School Component	Cost (in INR)
1.	Smart School Solution with O&M period of 5 years	Rs. 4,97,04,543

4.13.1 Inventory Breakup for Smart School Solution

Sr . No	School/College Name	No. of students	No. of Teachers	Grade	No. of All in One Device	No. of Strolley Bag	No. of Wi-Fi Dongle	No. of Netbooks	No. of Management Console	No. of UPS	No. of Internet Connectivity	No. of Digital Classrooms	No. of Benches	No. of Wireless Access router	No. of Charging Cart
1	GUPS, Basthigarden, Ward No-41	17	2	1,2,3,4,5	1	1	1	4	4	1	1	1	10	1	1
2	GUPS, Neereshwalya , Ward No-45	14	3	1,2,3,4,5,6,7	1	1	1	4	4	1	1	1	10	1	1
3	GLPS, Hoigebazar, Ward No-57	16	2	1,2,3,4,5	1	1	1	4	4	1	1	1	10	1	1
4	GUPS, Pandeshwara, Ward No-46	77	4	1,2,3,4,5,6,7	1	1	1	20	20	1	1	1	10	1	1
5	GUPS, Bunder (Urdu), Ward No-44	69	4	1,2,3,4,5,6,7	1	1	1	20	20	1	1	1	10	1	1

DETAILED PROJECT REPORT – IMPLEMENTATION OF ESMART SCHOOLS IN ALL GOVERNMENT SCHOOLS

Sr . No	School/College Name	No. of students	No. of Teachers	Grade	No. of All in One Device	No. of Strolley Bag	No. of Wi-Fi Dongle	No. of Netbooks	No. of Management Console	No. of UPS	No. of Internet Connectivity	No. of Digital Classrooms	No. of Benches	No. of Wireless Access router	No. of Charging Cart
6	Primary School, Jyothi Circle, Balmatta, Ward No-40	35	4	1,2,3,4,5,6,7	1	1	1	20	20	1	1	1	10	1	1
7	GUPS, Bolar, Ward No-58	52	4	1,2,3,4,5,6,7	1	1	1	20	20	1	1	1	10	1	1
8	GUPS, Bolar West (Urdu), Ward No-58	25	3	1,2,3,4,5,6,7	1	1	1	20	20	1	1	1	10	1	1
9	GHS, Hoigebazar, Ward No-57	40	7	8,9,10	1	1	1	20	20	1	1	1	10	1	1
10	Government Practicing HS, Mangaluru, Ward No-46	37	8	8,9,10	1	1	1	20	20	1	1	1	10	1	1
11	Secondary School Jyothi Circle, Balmatta, Ward No-40	103	8	8,9,10	1	1	1	20	20	1	1	1	10	1	1
12	GHS, Bunder (Urdu), Ward No-44	70	7	8,9,10	1	1	1	20	20	1	1	1	10	1	1
13	Govt High School Car Street Ward No-43	44	8	8,9,10	1	1	1	20	20	1	1	1	10	1	1

DETAILED PROJECT REPORT – IMPLEMENTATION OF ESMART SCHOOLS IN ALL GOVERNMENT SCHOOLS

Sr. No	School/College Name	No. of students	No. of Teachers	Grade	No. of All in One Device	No. of Strolley Bag	No. of Wi-Fi Dongle	No. of Netbooks	No. of Management Console	No. of UPS	No. of Internet Connectivity	No. of Digital Classrooms	No. of Benches	No. of Wireless Access router	No. of Charging Cart
14	GPUC Balmatta Ward No-40	910	19	8,9,10,11,12	13	13	13	110	110	13	13	13	0	13	13
15	GPUC Car Street Ward No-43	272	12	8,9,10,11,12	9	9	9	70	70	9	9	9	0	9	9
Total		1781	95	0	35	35	35	392	392	35	35	35	130	35	35

Table 8. School Wise Count

Note :

The distribution of inventory among the school and colleges will be done based on the inputs of MSCL to selected System integrator chosen for the project.

4.13.2 Manpower

Manpower to be deputed for initial one year Total Count -5

S. No	School	Students	Teachers	Grade	Manpower
1.	GUPS, Basthigarden, Ward No-41	17	2	1,2,3,4,5	1
2.	GUPS, Neereshwalya, Ward No-45	14	3	1,2,3,4,5,6,7	
3.	GLPS, Hoigebazar, Ward No-57	16	2	1,2,3,4,5	
4.	GUPS, Pandeshwara, Ward No-46	77	4	1,2,3,4,5,6,7	1
5.	GUPS, Bunder (Urdu), Ward No-44	69	4	1,2,3,4,5,6,7	
6.	Primary School, Jyothi Circle, Balmatta, Ward No-40	35	4	1,2,3,4,5,6,7	
7.	GUPS, Bolar, Ward No-58	52	4	1,2,3,4,5,6,7	
8.	GUPS, Bolar West (Urdu), Ward No-58	25	3	1,2,3,4,5,6,7	1
9.	GHS, Hoigebazar, Ward No-57	40	7	8,9,10	

DETAILED PROJECT REPORT – IMPLEMENTATION OF ESMART SCHOOLS IN ALL GOVERNMENT SCHOOLS

10.	Government Practicing HS, Mangaluru, Ward No-46	37	8	8,9,10	
11.	Secondary School Jyothi Circle, Balmatta, Ward No-40	103	8	8,9,10	
12.	GHS, Bunder (Urdu), Ward No-44	70	7	8,9,10	
13.	GHS, Bunder (Urdu), Ward No-44	70	7	8,9,10	
14.	Govt High School Car Street Ward No-43	44	8	8,9,10	1
15.	GPUC Balmatta Ward No-40	770	19	11,12	1
TOTAL		599	64		5

4.13.3 Costing

IMPLEMENTATION OF e-SMART SCHOOL (ICT)- BOQ					
Item Code	Item Name	Unit	Quantity	Unit Rate without GST	Total price Unit Rate with GST
DC01	All in One Device with pre-loaded multimedia content in Kannada compliant to Karnataka State Board Syllabus with inputs from Department of Primary & Secondary Education / Karnataka State Board / DSERT/NCERT for provisioning of approved content for the classes envisaged by the school authority along with strolley bag as per the specification given in section 4.14 of DPR	Nos	35	194000	67,90,000
DC02	White Ceramic Board	Nos	35	5000	1,75,000
DC03	Management Console License(MC) (OEM authorization to bidder/partner for MC to be provided)	Nos	392	2500	9,80,000
DC04	Netbook	Nos	392	24980	97,92,160
DC05	Access Point cum Wireless router	Nos	35	20000	7,00,000
DC06	Charging Cart for NetBooks	Nos	43	42000	18,06,000

IMPLEMENTATION OF e-SMART SCHOOL (ICT)- BOQ					
Item Code	Item Name	Unit	Quantity	Unit Rate without GST	Total price Unit Rate with GST
DC07	UPS for power back up with 30 min	Nos	35	20000	7,00,000
DC08	8 Mbps Internet Connectivity for per month 5 years 60 months	Nos	35	72000	25,20,000
DC09	Network Connectivity per classroom	Nos	35	3000	1,05,000
DC10	Benches (Two seater)	Nos	130	9500	12,35,000
DC11	Teachers Training 2 Days (To be conducted once in a year for 5 years)	Nos	95	4250	4,03,750
DC12	Electrical Works(Earthing) per school	Nos	15	9000	1,35,000
DC13	Electrical Works (All in One Device with UPS)	Nos	35	6000	2,10,000
DC14	Electrical Works (Netbooks /Charging Cart and All in one Device)	Nos	35	8000	2,80,000
DC15	Interior Works per Classroom	Nos	35	8000	2,80,000
DC16	Manpower for one year for Two PU colleges /Three for 13 Schools	Nos	5	3,25,000	16,25,000
Capex A					2,77,36,910
O&M02	Onsite Comprehensive Warranty / AMC - Year 2 for Digital Classrooms	LS	1	10% of Capex	27,73,691
O&M03	Onsite Comprehensive Warranty / AMC- Year 3 for Digital Classrooms	LS	1	10% of Capex	27,73,691

IMPLEMENTATION OF e-SMART SCHOOL (ICT)- BOQ					
Item Code	Item Name	Unit	Quantity	Unit Rate without GST	Total price Unit Rate with GST
O&M04	Onsite Comprehensive Warranty / AMC - Year 4 for Digital Classrooms	LS	1	10% of Capex	27,73,691
O&M05	Onsite Comprehensive Warranty / AMC- Year 5 for Digital Classrooms	LS	1	10% of Capex	27,73,691
Opex B					1,10,94,764
Total Capex + Opex					3,88,31,674
GST(18%)					69,89,701
Contingency (5%)					19,41,584
Tender Premium (5%)					19,41,584
Miscellaneous and Rounding off					2,95,457
Total Cost					50,000,000

4.14 Technical Specification for Smart Classroom for Smart School Solution

All in One Device with pre-loaded multimedia content

GEM

<https://mkp.gem.gov.in/digital-teaching-device/integrated-digital-teaching-device-with-vocational-skills-multimedia/p-5116877-55591425654-cat.html> - Rs.194,000.00

<https://mkp.gem.gov.in/digital-teaching-device/integrated-digital-teaching-device-with-multimedia-content-professional/p-5116877-46861045071-cat.html> - Rs.189,000.00

4.14.1.1 All in One Device with pre-loaded multimedia content

Component	Feature	Specifications
Computer	CPU	Intel i3 Processor or equivalent or higher
	Chipset	Intel Chipset or equivalent
	Memory	At least 4 GB RAM
	Graphics	Integrated Graphics
	Storage	Minimum 1TB
	Operating System	Windows 10/ Ubuntu/ Linux (Latest Edition compatible with the device)
In-built Interactivity	Brightness	3000 SVGA ANSI Lumens (Short Throw)
	Contrast Ratio	18000:1 or higher
	Lamp Life	5000 Hrs. (Standard Mode) 4000 Hrs. (Bright Mode)
In-built Interactivity		Image Processing Technology, should support the use of any wall (white colour) as an interactive classroom (touch based)
Digital Pen		The Digital Pen should be IR-based and should be rugged. Also, 4 sets of buds / nibs (for the Digital Pen) are to be provided for each unit
Keyboard		USB / Wireless Keyboard
Mouse		USB/Wireless 2-button Optical Scroll mouse
DVD Player	Optical Drive	DVD-RW
In-Built Audio System	Audio	30W Audio Speakers with Volume Control
Connectivity	Ethernet	LAN Connectivity for internet
	Wi-Fi	802.11 b/g/n
Certification	UL and BIS	
Warranty	1 year	

4.14.1.2 NetBook

Parameter	Specifications
CPU	Intel atom/ Celeron Processor / AMD A4/ AMD Athlon or higher processor /Celeron Duo
Memory	4 GB DDR 3 RAM or higher
Mother Board	Latest series 64 bit Chipset, OEM Motherboard
Screen Size (min)	11.6" or better
Hard Disk	Min 16 Gb
Networking Features	10/100/1000 Network Card with remote booting facility, remote system installation, Asset tracking and security management, remote wake up
Power supply	230 watts and above Energy Star compliant ver. 5.0, ACPI compliant or more SMPS power supply

Webcam	HD Webcam
Screen Resolution	1366 x 768
Warranty	1 year
Connectivity	Wi-Fi
Operating System	Edubuntu/Open Source/ Chrome

4.14.1.3 Charging Cart (for safe storage and charging of Netbooks)

Parameter	Specifications
Body	Charging Cart body should be made up of galvanic (GI) metal sheet of minimum 1.4mm thickness powder coated with proper chemical treatment from inside and outside.
Security	The main door should have lock and key facility.
Handle	One handle to pull/ move cart easily from one place to another.
Mobile	Charging Cart with mobile facility by adding heavy duty casters 360 degree movement.
Air Ventilation	Cart should have air ventilation from three sides including main doors. One heat sink fan should be installed in the cart to drain out the hot air. Heat sink fan should start automatically with charging of devices.
Switch and socket	Each and every laptop/tablet should have individual connectivity through charging adaptor to switch and socket of 5amps or 6amp. Each charging point should be connected with earthing.
Charging cord	charging cord of 3 core cable of 1.5sqmm minimum 5mtr length with 16amps plug.
Antistatic	Antistatic sheet should be laid inside the cart where vertical devices will be stored and charged.
Storage	Cart should have the feature of vertical device storage, high security; welded sheet of maximum 10 units can be vertically stored at one platform. Capacity to charge the student notebooks should be 20 units Extra BIN for storage at the lower platform
Device Storage Capacity	Maximum Number of devices: 20
Maximum Device Size	14"
Form Factors	Netbooks and Tablets
Dimensions (W × D × H)	23.5" × 25.0" × 41.6"
Case Material	Steel
Timer enabled	No
Lockability	Key Lock
Mobility	Stationary
Slots	Fixed
Shelves	Fixed
Warranty	1 year
Delivered	Assembled

4.14.1.4 Management Console

Web Based interface, Lock Devices, Push apps and extensions, Enforcement policies, Administrator tests at scale etc. License of the same to be purchased in name of school/college.

4.14.1.5 Access point cum Wireless Router

Parameter	Specifications
Standard & Protocol	IEEE 802.11n ,IEEE 802.11g,IEEE 802.11b

Parameter	Specifications
	IEEE 802.3,IEEE 802.3u
Functionality	Both of a router and an access point in a single unit
Interface	3 10/100M adaptive LAN ports (auto MDI/MDIX) 1 10/100M adaptive WAN port (auto MDI/MDIX) 1 USB 2.0 interface
Antenna	two fixed 5dBi Omni Directional antennas
Software	<ul style="list-style-type: none"> • Static / dynamic routing protocols as applicable • Multicast pass-through • Denial-of-service (DoS) prevention • Web based configuration • Universal Plug and Play • Access control lists • Password-protected configuration or management sessions for web access • 802.1p prioritization QoS support • Wi-Fi Protected Access (WPA) and WPA2 • Dual service set identifiers (SSIDs)
Button	1*WPS/RESET
Power	Input Voltage Range(VAC): AC 110-240V Output Voltage(VDC): DC 9V 600mA
Dimension	(L*W*H) 171.55mm*110mm*25.3mm
Indicator	Power: Often bright, indicates normal power supply WPS: Flashing, Indicates link building SYS: Flashing, Indicates normal operating system USB: Often bright, indicates normal linkage 1*WLAN: Flashing, indicates normal wireless signal 3*WAN: Flashing
Wireless Link Rate	300Mbps
Frequency Range	2.4-5GHz
Basic Function	Client Filter SSID, Broadcast Channel
Wireless Security	WPA-PSK/WPA2-PSK WPA/WPA2 WEP
Security Features	Password-protected configuration for web access <ul style="list-style-type: none"> • DoS prevention • URL filtering and keyword, Java, ActiveX, proxy, cookie blocking • 64- and 128-bit Wired Equivalent Privacy (WEP), VPN compatibility with pass-phrase WEP key generation • Access restriction by MAC and IP addresses
WAN Connection Type	3G/4G, PPPOE DHCP Static IP PPTP L2TP
Working Mode	Wireless router 3G/4G Router Universal Repeater
DHCP	DHCP Server DHCP Client List DHCP Reservation
VPN Pass-through	IPsec VPN PPTP L2TP
Other	UPnP DDNS Smart Switch, Circuit Backup
Temperature	Operating Temperature: 0°C~40°C Storage Temperature: -30°C~70°C
Humidity	Operating Humidity:10% ~ 90% RH Non-condensing Storage Humidity:5% ~ 90% RH Non-condensing
Certification	FCC CE RoHS
Other items to be included Content	Power Adapter Quick Install Guide Resource CD

Parameter	Specifications
Warranty	1 year

4.14.1.6 1 KVA UPS with 30 minutes of back up

Parameter	Specifications
Capacity	1 KVA
Technology	MOSFET-PWM
Input Power	single-phase 160V - 260V sinewave,50Hz
Output Power	single-phase 230V ±1% sinewave,50Hz
Backup Time	30 Minutes
Minimum VAH	400 VAH
Voltage Regulation From No Load To Full Load	1 %
Inbuilt Isolation Transformer	Yes
20% Overload Limit For Minimum 10 Minutes	Yes
50% Overload Limit For Minimum 1 Minutes	Yes
Total Harmonic Distortion(THD)	8% %
Overall Efficiency	90 %
Type Of Battery	SMF-VRLA conforming to JISC:8702(Pt.I,II&III)
Minimum Thickness Of M.S. Sheet Enclosure Duly Painted	1.2 mm
Degree Of Protection	IP21
Protection Of Over Voltage, Short Circuit & Over Load At UPS Output Terminal	Yes
Protection For Under Voltage At Battery Terminal At 10.5V Per 12 V Battery.	Yes
Maximum Overshoot And Under Shoot Of Output Rated Voltage	4
Indicators For Mains Presence, Battery Charging And Discharging, Output Over Load, Low Battery Voltage	Yes
Digital Metering In UPS For AC Input Voltage, Output AC Voltage, Current,Frequency,Battery Voltage, And Current	Yes
Movable Trolley For Batteries	Without
Dry Heat Test: In Accordance With IS:9000 (part 3/sec.5)1977 (reaffirmed 2007) At 55 Degree C For 16 Hrs	Yes
Damp Heat: In Accordance With IS:9000(part 5/sec.2)1981 At Temperature Of 40 Degree C, two Cycles Of (12+12) Hours Each 2007)	Yes
Cold Test: In Accordance With IS:9000 (Part 2/Sec.4)1977 (Reaffirmed 2007) At -10 Degree C For 4 Hrs.	Yes
Availability Of The Type Test Report From Central Govt. /NABL/ILAC Accredited Lab Covering All Technical Requirements.	Yes
Warranty	1 year

Note: The batteries should be replaced as and when the VAH goes down below 50% during the entire contract period and also during exit.

4.14.1.7 Student Benches

Parameter	Specifications
TYPE OF DESKING	INTEGRATED DESK CUM SEATING
Desking Configuration	TWO SEATER
Length of Desking, Seating and Backrest (if provided) in mm (±10 mm)	800
DESK / BENCH SPECIFICATIONS	

Parameter	Specifications
The material of Desk Top +/- 2 mm (For shelf/storage +/- 4 mm)	18 mm thick pre-laminated Particle Board
The material of Support Structure or Side Panel	Mild Steel square Section of size 25x25 mm and wall thickness minimum 1.6 mm
Height of Desk Top in mm (±5 mm)	750
Width of Desk Top in mm (± 5 mm)	450
SEATING SPECIFICATION	
The material of Seat and Backrest (if provided) (+/- 2 mm (For backrest +/- 4 mm)	18 mm thick pre-laminated Particle Board
The material of Support Structure	Mild Steel square Section of size 25x25 mm and wall thickness minimum 1.6 mm
The material of Seat Cushion	WITHOUT CUSHION
Width of Seating in mm (±10 mm)	450
Height of Seat in mm (±10 mm)	400
Width of backrest if provided in mm (± 5 mm)	430
Back Support for Seating of Same material as Seating	Provided without cushion
MISC	
DESIGN AS PER DGS&D drawing No DQA/GE/RC-208/Schedule 19 (DRG 1,2,3,4,5,6,7,8,9,10)	Can be configured as per buyer's choice within offered technical details
Color of finish	RGBY
Desktop finishing	All sides Edge to be banded with PVC tape of 2 mm thick with help of hot melt glue
Distance between Tabletop edge and Seat edge in mm (+/- 5 mm)	NA
Warranty	As per RFP, Section 7 Appendix II: General Instructions listed in Commercial Proposal Templates

The above item specifications are indicative and hence to be suitably provided by the vendor based on the age group of the students in the schools according to their sitting comfort.

4.14.1.8 White Ceramic Board

Parameter	Specifications
Purpose of writing board	Writing cum Projection screening
Material of Board	Ceramic Steel with Engraving / Porcelain Enamel Steel with engraving
Dimensions of the Board in feet (width x height)	6 x 4
Wall thickness of Anodized Aluminum Frame (Min) in mm	1.2 millimeter
Color of Board	White
Frame Width in mm	20 millimeter
Excellent Erasability without leaving impression	Yes
% Gloss at 60 deg.head (min.)	80% for white color only
Surface suitable for writing with	Dry marker ink for white board only
Material of Frame	Anodized extruded Aluminum alloy hollow section of designation 63400 conforming to IS: 1285
Material of Back Cover	Galvanized steel sheets conforming to IS:277
Warranty	1 Year

The above item specifications are indicative and hence to be suitably provided by the vendor based on the dimensions of the wall of the classroom in the schools accordingly.



4.15 Sustainability Plan

The use of ICT in the classroom will lead to the participation of students in short term courses of IT. This can be taken under skill development plan where students in vacation can undertake short term courses with nominal fees and completion certification can be awarded to them which can be helpful to students in their future career.

Special posts for ICT Teacher or ICT support staff can be created so as to look after the IT infrastructure in school without depending on SI after the ending of the O&M period.

The software developed by SI will be in open source hence while the contract of the SI gets over after O & M phase. The data along with the source code should be handed over to the MSCL. Later on, it can be customized by the ICT support staff.

Academic staff should be motivated to create the educational content like MCQ, quizzes, and worksheets in LMS rather than depending on SI to create the same.

4.16 Expected Outcomes and Benefits of the Project

The skills and abilities that a smart classroom environment can bring about change in the teaching-learning process. Those learning technologies in general

- have affirmative effects on student achievements in all subject areas
- improve the achievement of high skill learners
- assist the teaching and learning of students with special needs

- produce positive effects on attitudes toward learning, teamwork and high order thinking skills
- help teachers in the use of technology more effectively to enhance the learning of their students,

In the environment of Smart Schools, these skills and abilities will lead to a perceptible shift from

- didactic classroom teaching to participatory, decentralized, interactive group learning,
- traditional learning environment to a climate that encourages exploration, problem-solving and decision-making,
- usual instructional methodology to strategies that join knowledge,
- mastery of a fixed body of knowledge to an understanding of a network of relations between parts of a whole,
- linear, sequential reasoning to search for patterns and associations, and
- collection of information to the processing of information.

Imperative for teachers

The most crucial factor in implementing and maintaining any modernization in the school is the teacher. Smart School teachers will require training so that they,

- are able to link activities done on the computer to the general education of children and
- act as facilitators in the process of learning.

School management

The management policy for Smart Schools will be consistent with the Smart School concept. IT will be used in carrying out the administrative as well as academic functions of the school. Teachers will use computers for evaluation, maintenance of performance reports of students and interaction with parents. The entire administrative staff will use IT for storage, management, and retrieval of information.

4.17 Detailed Work Plan

Table 10. : Work Plan

Task ID	Task	Duration	Predecessor	Deliverables
Phase I -Deployment				
1	Kick-off Meeting and Discussion with Mangaluru Smart City Limited (MSCL) by System Integrator (SI), Project Management Consultant (PMC), Block Education Office, Academic Staff of Government schools regarding implementation of smart classrooms.	1 week	-	Minutes of Meeting
2	School site Survey for set up of ICT classrooms	4 weeks	-	Site Survey Report
3	Customization of LMS incorporating role activity user management, a multilingual feature of languages Urdu and Kannada, mapping of course content compliant to Karnataka State Board based on the inputs from academic staff of government schools and block education office	8 weeks	1	User and System/Product Manual
4	Procurement of Hardware Infrastructure components by SI /Approval of Bill of Materials (BOM) by MSCL	2 weeks	2	Asset List/Bill of Material[BOM]
5	Approval of the deployment of final customized LMS product by SI from MSCL, PMC and education authorities	2 Weeks	3	Sign off on Deployment Architecture /Co-Location Forms and Product Manual
6	LMS Installation & Configuration for Training and Production environment	1 week	5	Installation/ Configuration Manual of the Product
7	Deployment and Hosting and Fitting of Hardware Infrastructure in classrooms by SI along with prior permission to host from various local education offices and schools to go ahead.	2 weeks	5	Backup /DR plan
Phase II: Training				
8	Creation of Training and Change Management Plan	2 weeks	8	Training Calendar, Change Management Plan
9	Submission of approved Technical and User Manuals to MSCL and training of personnel	2 weeks	9	User Manual, System Manual, Training Feedback
Phase IV: Operations & Maintenance				

DETAILED PROJECT REPORT – IMPLEMENTATION OF ESMART SCHOOLS IN ALL GOVERNMENT SCHOOLS

Task ID	Task	Duration	Predecessor	Deliverables
10	5 years Operations (reporting and system issues resolution)	36 months	7	Status Reports
11	5 years of Maintenance (software enhancement e-content updation & bug fixing by System Integrator)	3 months	7	Status Reports

Annexure A: List of Schools



Figure 2: Karnataka Education Website

DETAILED PROJECT REPORT – IMPLEMENTATION OF ESMART SCHOOLS IN ALL GOVERNMENT SCHOOLS

DhakshinaKannadaPrySchools.pdf - Adobe Reader							
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17 / 41 100%							
377	MANGALORE CITY	2924030410	GLPS, BABUGUDDA, WARD NO-55	Yes	Yes	Yes	
378	MANGALORE CITY	2924030430	GLPS, HOIGEBAZAR, WARD NO-57	Yes	Yes	Yes	
379	MANGALORE CITY	2924030380	GLPS, KALUVEREGURI, WARD NO-50	Yes	Yes	Yes	
380	MANGALORE CITY	2924030370	GLPS, KANKANADY, WARD NO-49	Yes	Yes	Yes	
381	MANGALORE CITY	2924030360	GLPS, SUTERPETE, WARD NO-48	Yes	Yes	Yes	
382	MANGALORE CITY	2924030040	GMUPS, KAVOOR, WARD NO-15	Yes	Yes	Yes	
383	MANGALORE CITY	2924030050	GMUPS, KODICAL, WARD NO-16	Yes	Yes	Yes	
384	MANGALORE CITY	2924030020	GMUPS, MARAKADA, WARD NO-13	Yes	Yes	Yes	
385	MANGALORE CITY	2924030090	GMUPS, NALYAPADAVU, WARD NO-21	Yes	Yes	Yes	
386	MANGALORE CITY	2924030010	GMUPS, PANJIMOGARU, WARD NO-12	Yes	Yes	Yes	
387	MANGALORE CITY	2924030280	GOVT. TTI, BALMATTI, WARD NO-40	Yes	Yes	Yes	
388	MANGALORE CITY	2924030350	GUPS, ATTAVARA, WARD NO-47	Yes	Yes	Yes	
389	MANGALORE CITY	2924030290	GUPS, BASTHIGARDEN, WARD NO-41	Yes	Yes	Yes	
390	MANGALORE CITY	2924030150	GUPS, BOKKAPATNA-3, WARD NO-27	Yes	Yes	Yes	
391	MANGALORE CITY	2924030150	GUPS, BOKKAPATNA-6, WARD NO-27	Yes	Yes	Yes	

Note : School List Generated as 31/03/2012 Page 17

List of Schools Having facilities - Drinking Water, Boys Toilet and Girls Toilet						
District Name : DAKSHINA KANNADA						Primary Schools
Sl.No.	Block Name	School Code	School Name	Drinking Water	Boys Toilet	Girls Toilet
392	MANGALORE CITY	2924030440	GUPS, BOLAR , WARD NO-58	Yes	Yes	Yes
393	MANGALORE CITY	2924030440	GUPS, BOLAR WEST (URDU), WARD NO-58	Yes	Yes	Yes
394	MANGALORE CITY	2924030320	GUPS, BUNDER (URDU), WARD NO-44	Yes	Yes	Yes
395	MANGALORE CITY	2924030160	GUPS, GANDHINAGAR, WARD NO-28	Yes	Yes	Yes
396	MANGALORE CITY	2924030400	GUPS, JAPPINAMOGARU, WARD NO-54	Yes	Yes	Yes
397	MANGALORE CITY	2924030210	GUPS, KADRI MALLIKATTE, WARD NO-33	Yes	Yes	Yes
398	MANGALORE CITY	2924030310	GUPS, KANDATHAPALLI (URDU), WARD NO-43	Yes	Yes	Yes
399	MANGALORE CITY	2924030190	GUPS, KAPIKAD, WARD NO-31	Yes	Yes	Yes
400	MANGALORE CITY	2924030430	GUPS, KUDROLI (URDU), WARD NO-57	Yes	Yes	Yes
401	MANGALORE CITY	2924030450	GUPS, MAHAKALIPADPU, WARD NO-59	Yes	Yes	Yes
402	MANGALORE CITY	2924030170	GUPS, MANNAGUDDA, WARD NO-29	Yes	Yes	Yes
403	MANGALORE CITY	2924030070	GUPS, MULLAKADU, WARD NO-18	Yes	Yes	Yes
404	MANGALORE CITY	2924030330	GUPS, NEERESHWALYA, WARD NO-45	Yes	Yes	Yes
405	MANGALORE CITY	2924030090	GUPS, PADAVU, WARD NO-21	Yes	Yes	Yes
406	MANGALORE CITY	2924030340	GUPS, PANDESHWARA, WARD NO-46	Yes	Yes	Yes
407	MANGALORE CITY	2924030060	GUPS, PARAPADE, WARD NO-17	Yes	Yes	Yes

Figure 3: List of Primary Schools in Mangaluru City

DhakshinaKannadaSecSchools.pdf - Adobe Reader							
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3 / 7 100%							
67	MANGALORE CITY	2924030410	GHS, ATTAVARA, WARD NO-55	Yes	Yes	Yes	
68	MANGALORE CITY	2924030320	GHS, BUNDER (URDU), WARD NO-44	Yes	Yes	Yes	
69	MANGALORE CITY	2924030430	GHS, HOIGEBAZAR, WARD NO-57	Yes	Yes	Yes	
Note : School List Generated as 31/03/2012				Page 3			
List of Schools Having facilities - Drinking Water, Boys Toilet and Girls Toilet							
District Name : DAKSHINA KANNADA				Secondary Schools			
Sl.No.	Block Name	School Code	School Name	Drinking Water	Boys Toilet	Girls Toilet	
70	MANGALORE CITY	2924030210	GHS, MALLIKATTE, WARD NO-33	Yes	Yes	Yes	
71	MANGALORE CITY	2924030070	GHS, MULLAKADU, WARD NO-18	Yes	Yes	Yes	
72	MANGALORE CITY	2924030090	GHS, NALYAPADAVU, WARD NO-21	Yes	Yes	Yes	
73	MANGALORE CITY	2924030200	GOVT JUNIOR TECHNICAL SCHOOL, KADRI, WARD NO-32	Yes	Yes	Yes	
74	MANGALORE CITY	2924030340	GOVT. PRACTICING HS, MANGALORE, WARD NO-46	Yes	Yes	Yes	
75	MANGALORE CITY	2924030310	GPUC (WOMENS) CAR STREET, WARD NO-43	Yes	Yes	Yes	
76	MANGALORE CITY	2924030280	GPUC, BALMATTA, WARD NO-40	Yes	Yes	Yes	
77	MANGALORE CITY	2924030150	GPUC, BOKKAPATNA, WARD NO-27	Yes	Yes	Yes	
78	MANGALORE CITY	2924030040	GPUC, KAVOOR, WARD NO-15	Yes	Yes	Yes	

Figure 4: List of Secondary Schools in Mangaluru City

Annexure B: Indicators

B.1 Indicators of Infrastructure

B.1.1. Student Classroom Ratio (SCR)

Definition: Average number of pupils (students) per classroom in primary/upper primary/secondary schools in a given school year.

Calculation Method: Divide the total number of pupils enrolled in primary / upper primary / secondary schools by the total number of classrooms in primary / upper primary / secondary schools in a given school year.

Formula:

$$SCR^t = (E^t / C^t)$$

Where:

SCR^t = Student classroom ratio for primary/upper primary/secondary schools in school-year t.

E^t = Total enrolment in primary/upper primary/secondary schools in school-year t.

C^t = Total number of classrooms in primary/upper primary/secondary schools in school-year t.

B.1.2. Percentage of Schools Having x Classrooms

Definition: The number of schools of a given category having x classrooms (x = 1, 2, 3, ...,n; where n is the maximum number of classrooms in a school belonging to a given category) expressed as a percentage of total number of schools in that category.

Calculation method: Divide the number of schools of a given category having x classrooms (x = 1, 2, 3, ..., n) by the total number of schools in that category, and multiply by 100.

Formula:

$$\%SWC_x^c = (SWC_x^c / TS^c) * 100$$

Where:

%SWC_x^c = Percentage of schools having x classrooms (x = 1, 2, 3, ..., n) in school category c.

SWC_x^c = Number of schools of category c having x classrooms.

TS^c = Total number of schools in category c.

B.1.3. Percentage of Schools Having Toilets

Definition: The number of schools of a given category having a toilet is expressed as a percentage of the total number of schools in that category.

Calculation method: Divide the number of schools of a given category having a toilet by total number of schools of that category, and multiply by 100.

Formula:

$$\%ST^c = (ST^c / TS^c) * 100$$

Where:

%ST^c = Percentage of schools of category c having a toilet.

ST^c = Number of schools of category c having a toilet.

TS^c = Total number of schools in category c.

B.1.4. Percentage of Schools with Girl's Toilet in a Given School Category

Definition: The number of schools of a given category having a girl's toilet expressed as a percentage of the total number of schools of that category.

Calculation method: Divide the number of schools of a given category having a girl's toilet by a total number of schools of that category, and multiply by 100.

Formula:

$$\%SGT^c = (SGT^c / TS^c) * 100$$

Where:

$\%SGT^c$ = Percentage of schools of category c having girl's toilet.

SGT^c = Number of schools of category c having girl's toilet.

TS_c = Total number of schools in category c.

B.2. Indicators of Quality Inputs

B.2.1. Percentage of Schools Having Mother Tongue as a Medium of Instruction at a Given School Stage

Definition: The number of schools having a mother tongue as a medium of instruction at a given school stage as a percentage of total number of schools having that stage.

Calculation method: Divide the number of schools having a mother tongue as a medium of instruction at a given school stage by a total number of schools having that stage, and multiply the result by 100.

Formula:

$$\%SM_c^t = (SM_c^t / S_c^t)$$

Where:

$\%SM_c^t$ = Percentage of schools having mother tongue as a medium of instruction at school stage c (primary or upper primary or secondary) to the total number of schools having that stage in school-year t.

SM_c^t = Number of schools having mother tongue as a medium of instruction at school stage c in school-year t.

S_c^t = Total number of schools having school stage c in school-year t.

B.2.2. Pupil-Teacher Ratio

Definition: Average number of pupils (students) per teacher at a specific level of education in a given school year.

Calculation method: Divide the total number of pupils enrolled at the specific level of education by the number of teachers teaching pre-dominantly at that level.

Formula:

$$PTR^t_h = (E^t_h / T^t_h)$$

Where:

PTR^t_h = Pupil-teacher ratio at the level of education h in school-year t.

E^t_h = Total number of pupils or (students) at the level of education h in school-year t.

T^t_h = Total number of teachers teaching pre-dominantly at the level of education h in school-year t.

Remark: A teacher is to be classified according to the stage at which she/he is predominantly teaching, i.e., the stage of education at which maximum time is devoted. If a teacher is teaching at more than one stage of education and devoting equal time at all the stages, then she/he is to be classified at the highest stage at which she/he is teaching.

***Note only Two indicators are calculated for the implementation of eSmart School as the main stakeholders of this program are Teachers and Students.**

Indicative Figures will help in deciding the approval of investment in setting up the ICT infrastructure in each classroom based on the Students Teacher Ratio.

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**Press Information Bureau
Government of India
Ministry of Human Resource Development**

09-February-2017 16:51 IST

Student-Teacher Ratio

The Right of Children to Free and Compulsory Education (RTE) Act, 2009 in its Schedule lays down Pupil Teacher Ratio (PTR) for both primary and upper primary schools. At primary level the PTR should be 30:1 and at the upper primary level it should be 35:1. The Rashtriya Madhyamik Shiksha Abhiyan (RMSA) framework stipulates that the PTR at secondary level should be 30:1.

As per Unified District Information System For Education (UDISE) the PTR at national level for elementary schools is 24:1 and for secondary schools it is 27:1. The PTR in most of the States and UTs is found to be satisfactory. However, since some schools have lesser teachers than the required number, it is clear that while there are sufficient teachers, the main issue is their correct deployment.

Globally, there are variations in the optimum number of students taught in a particular class and as such the data is not uniformly comparable. Data from the UNESCO Institute of Statistics on PTR in primary schools shows that India has a national PTR comparable to countries with similar social-economic indicators.

The recruitment, service conditions and redeployment of teachers are primarily in the domain of respective State Governments and UT Administrations. However, the Central Government through the flagship programmes of Sarva Shiksha Abhiyan (SSA) at elementary level and Rashtriya Madhyamik Shiksha Abhiyan (RMSA) at secondary level provides assistance to the State Governments and UTs for additional teachers to maintain appropriate PTR as per the prescribed norms for various levels of schooling.

The Central Government has been consistently pursuing the matter of expeditious recruitment and redeployment of teachers with States and UTs at various fora. Advisories on this issue have also been issued to States and UTs from time to time. This information was given by the Minister of State (HRD), Shri Upendra Kushwaha today in a written reply to a Rajya Sabha question.

GG/RT/RK/

Figure 5: RTE Act Student-Teacher Ratio

Annexure C: School Details

C.1. GUPS, Basthigarden, Ward No-41

The total strength of students across 1st to 5th Standard is just 17. Two teachers are teaching five subjects. The time allocation of a teacher of teaching one subject to each classroom per standard is problematic. The location of the school is in the area where non-electrical & hardware shops are present, unethical activities are on rise. Fan and Water purifiers in this school are donated.

Type of School:	Primary		
Standards Covered:	1 st to 5 th		
Subjects Taught:	Kannada, English, Hindi, Maths, Social Studies, Science		
Total Number of Teachers:	Two -2		
Total Number of Students :	17		
Boys Girls Ratio per standard:	Standard	Boys	Girls
	1 st	1	1
	2 nd	2	5
	3 rd	0	2
	4 th	1	2
	5 th	0	3
	Total -17	4	13
Student Classroom Ratio (SCR):	17/5 = 3.4		
Pupil-Teacher Ratio (PTR):	Standard	Total	PTR = Student / Teacher
	1 st	2	1
	2 nd	7	3.5
	3 rd	2	1
	4 th	3	1.5
	5 th	3	1.5
Toilets:	Boys	Girls	Physically Disabled
	1	1	1
Water Purifier Drinking Water:	Yes Donated		
Computers:	Two Desktops present – One is Working		
Other Observations	CCTV surveillance is required on school premises. A report about miscreants doing illegal activities in school premises is registered in North Police Station.		

C.2. GUPS, Neereshwalya, Ward No-45

The total strength of students across 1st to 7th Standard is 14. Three teachers are teaching five subjects. The time allocation of teacher of teaching one subject to each classroom per standard is problematic. No proper Lighting is present which makes what is written on blackboard difficult to read. Fan and Water purifiers in this school are donated.

Type of School:	Primary		
Standards Covered:	1 st to 7 th		
Subjects Taught:	Kannada, English, Hindi, Maths, Social Studies, Science		
Total Number of Teachers in school:	Three - 3		
Total number of students in school:	14		
Boys Girls Ratio per standard:	Standard	Boys	Girls
	1 st	1	1
	2 nd	1	1
	3 rd	2	1
	4 th	2	0

	5 th	2	1
	6 th	0	0
	7 th	2	0
	Total-14	10	4
Student Classroom Ratio (SCR):	14/7=2		
Pupil-Teacher Ratio (PTR):	Standard	Total	PTR = Student/Teacher
	1 st	2	0.67
	2 nd	2	0.37
	3 rd	3	1
	4 th	2	.67
	5 th	3	1
	6 th	0	0
	7 th	2	.67
Toilets:	Boys	Girls	
	1	1	
Water Purifier Drinking Water:	Donated		
Computers:	No		
Other Observations	-		

C.3. GUPS, Pandeshwara, Ward No-46

The total strength of students across the 1st to 7th Standard is 77. Four teachers are teaching five subjects. The water purifier in this school is donated. Computers are donated by Canara Bank which is out of AMC warranty.

Type of School:	Primary		
Standards Covered:	1 st to 7 th		
Subjects Taught:	Kannada, English, Hindi, Maths, Social Studies, Science		
Total Number of Teachers in school:	Four -4		
Total Number of Students in school:	77		
Boys Girls Ratio per standard:	Standard	Boys	Girls
	1 st	5	5
	2 nd	5	7
	3 rd	6	5
	4 th	8	8
	5 th	7	5
	6 th	5	3
	7 th	5	3
	Total -77	41	36
Student Classroom Ratio (SCR):	77/7=11		
Pupil-Teacher Ratio (PTR):	Standard	Total	PTR = Student / Teacher
	1 st	10	2.5
	2 nd	12	3
	3 rd	11	2.75
	4 th	16	4
	5 th	12	3
	6 th	8	2
	7 th	8	2
Toilets:	Boys	Girls	
	1	3	
Water Purifier Drinking Water:	Yes Donated		
Computers:	Yes Donated		
Other Observations	Basic of Computers that are drawing in ms paint, typing in word		

	<p>and excel is taught. Nalli-Kalli method of Teaching is conducted for students from Standard 1st to 3rd. Nali Kali system allows flexibility which facilitates the shifting of learning units to different levels and grades depending upon the local situation and circumstances. The curriculum is seen as a continuum from classes I-IV – the child can re-enter the learning ladder at the point where she left off. Textual material replaced by learning cards. The learning sequence is broken into the smallest possible units.</p>
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Physical Infrastructure:

- Mini Library and Science Lab needs to be set up.
- Flooring and Roof of Dining Hall need to be repaired.
- Easy foldable Partition needs to be present between the classes.
- Painting is required.

Sports Infrastructure:

- School has won many accolades in Kabaddi.

Sports Facility Provision Suggestion:

- Kabaddi Ground + Coaching



C.4. GLPS, Hoigebazar, Ward No-57

- Six subjects are taught by two teachers for the strength of 16 students across 1st to 5th standard.
- The time allocation of the teacher of teaching one subject to each classroom per standard is problematic.
- No proper Lighting is present which makes what is written on blackboard difficult to read.
- Fan and Water purifiers in this school are donated.

Type of School:	Primary
Standards Covered:	1 st to 5 th
Subjects Taught:	Kannada, English, Hindi, Maths, Social Studies, Science
Total Number of Teachers in school:	Two -2
Total Number of Students in school:	16

Boys Girls Ratio per standard:	Standard	Boys	Girls
	1 st	1	0
	2 nd	2	2
	3 rd	1	3
	4 th	1	1
	5 th	2	3
	Total -16	7	9
Student Classroom Ratio (SCR):	16/5=3.6		
Pupil-Teacher Ratio (PTR):	Standard	Total	PTR = Student / Teacher
	1 st	1	0.5
	2 nd	4	2
	3 rd	4	2
	4 th	2	1
	5 th	5	2.5
Toilets:	Boys	Girls	Physically Disabled
	1	1	1
Water Purifier Drinking Water:	Yes		
Computers:	No		
Other Observations	School building in a dilapidated state		



Physical Infrastructure:

- The electrical fitting needs to be set up.
- The cost of Electrical maintenance was worked out (Rs. 50,000) by the school authorities and the proposal was submitted to the block education office.

C.5. GHS, Hoigebazar, Ward No-57

Six subjects are taught by seven teachers. The student-teacher ratio is fine compared to other government schools but teachers’ apprehension for the introduction of ICT in curriculum was clearly seen while conducting the survey.

Type of School:	Secondary		
Standards Covered:	8 th to 10 th		
Subjects Taught:	Kannada, English, Hindi, Maths, Social Studies, Science		
Total Number of Teachers in school:	7		
Total Number of Students in school:	40		
Boys Girls Ratio per standard:	Standard	Boys	Girls
	8 th	14	3
	9 th	7	5

	10 th	4	7	
	Total - 40	25	15	
Student Classroom Ratio (SCR):	40/3=13.33			
Pupil-Teacher Ratio (PTR):	Standard	Total	PTR = Student / Teacher	
	8 th	17	2.42	
	9 th	12	1.71	
	10 th	11	1.57	
Toilets:	Yes the entire building is constructed			
Water Purifier Drinking Water:	Yes			
Computers:	Yes 10 laptops donated by Mphasis HP in 2006-07, out of which 2 are in working condition			
Other Observations	6 th and 7 th Standards are present in Bolar school.			

Physical Infrastructure:

- Water pressure in the tap is quite low
- Water leakage from the ceiling in the Dining room of the school

Sports Infrastructure:

- Badminton and Basket Ball courts setup + Coaching schedule could be established.
- Kabaddi courts setup + Coaching schedule could be established.



C.6. Government Practicing HS, Mangaluru, Ward No-46

The computer in this school is donated by a relative of academic staff. Teachers have to periodically upload the attendance on student tracking system developed by Infosys across Karnataka State. Internet connectivity is provided. Basic computers are taught to Secondary school students which is way much less than in comparison with private computer course curriculum.

Type of School:	Secondary		
Standards Covered:	8 th to 10 th Standard		
Subjects Taught:	Kannada, English, Hindi, Maths, Social Studies, Science		
Total Number of Teachers in school:	Eight -8		
Total Number of Students in school:	37		
Boys Girls Ratio per standard:	Standard	Boys	Girls
	8 th	7	2
	9 th	19	1
	10 th	6	2
	Total -37	32	5
Student Classroom Ratio (SCR):	37/3=12.33		
Pupil-Teacher Ratio (PTR):	Standard	Total	PTR = Student / Teacher
	8 th	9	1.125
	9 th	20	2.5
	10 th	8	1
Toilets:	Boys	Girls	

	6	6
Water Purifier Drinking Water:	Yes	
Computers:	Yes	
Other Observations	Total number of classrooms -3 ICT Lab has been set up -10 desktops are allocated out of which four are in working condition. Basics about Computers such as Word, Excel, and Paint are taught to students.	

Physical Infrastructure:

- Proposal for redevelopment of school has been sent to Block Education Office.

Sports Infrastructure:

- Nehru Maidan is used for sports-related activities.
- The Basket Ball court, Volleyball, and Athletics activities can be setup.



C.7. GUPS, Bunder (Urdu), Ward No-44

Three languages are taught in this school. The school has a playground and a separate hall for school functions. No computer is present.

Type of School:	Primary		
Standards Covered:	1 st to 7 th		
Subjects Taught:	Kannada, English, Hindi, Maths, Social Studies, Science, Urdu		
Total Number of Teachers:	Four -4		
Boys Girls Ratio per standard:	Standard	Boys	Girls
	1 st	1	4
	2 nd	4	4
	3 rd	6	2
	4 th	6	7
	5 th	1	7
	6 th	6	7
	7 th	8	6
	Total - 69	32	37

Student Classroom Ratio (SCR):	49/7=7		
Pupil-Teacher Ratio (PTR):	Standard	Total	PTR = Student / Teacher
	1 st	5	1.25
	2 nd	8	2
	3 rd	8	2
	4 th	13	3.25
	5 th	8	2
	6 th	13	3.25
	7 th	14	3.5
Toilets:	Boys	Girls	
	1	1	
Water Purifier Drinking Water:	Yes		
Computers:	No		
Other Observations	<p>Total number of classrooms -7 A laptop is required for teaching staff for making data entry about student details in Student Management System.</p>		

C.8. GHS, Bunder (Urdu), Ward No-44

Type of School:	Secondary																	
Standards Covered:	8 th to 10 th																	
Subjects Taught:	Kannada, English, Hindi, Maths, Social Studies, Science, Urdu																	
Total Number of Teachers in school:	Seven -7																	
Total Number of Students in school:	70																	
Boys Girls Ratio per standard:	<table border="1"> <thead> <tr> <th>Standard</th> <th>Boys</th> <th>Girls</th> </tr> </thead> <tbody> <tr> <td>8th</td> <td>10</td> <td>9</td> </tr> <tr> <td>9th</td> <td>22</td> <td>15</td> </tr> <tr> <td>10th</td> <td>9</td> <td>5</td> </tr> <tr> <td>Total -70</td> <td>41</td> <td>29</td> </tr> </tbody> </table>	Standard	Boys	Girls	8 th	10	9	9 th	22	15	10 th	9	5	Total -70	41	29		
Standard	Boys	Girls																
8 th	10	9																
9 th	22	15																
10 th	9	5																
Total -70	41	29																
Student Classroom Ratio (SCR):	70/3=23.33																	
Pupil-Teacher Ratio (PTR):	<table border="1"> <thead> <tr> <th>Standard</th> <th>Total</th> <th>PTR = Student /Teacher</th> </tr> </thead> <tbody> <tr> <td>8th</td> <td>19</td> <td>2.71</td> </tr> <tr> <td>9th</td> <td>37</td> <td>5.28</td> </tr> <tr> <td>10th</td> <td>14</td> <td>2</td> </tr> </tbody> </table>	Standard	Total	PTR = Student /Teacher	8 th	19	2.71	9 th	37	5.28	10 th	14	2					
Standard	Total	PTR = Student /Teacher																
8 th	19	2.71																
9 th	37	5.28																
10 th	14	2																
Toilets:	<table border="1"> <thead> <tr> <th>Boys</th> <th>Girls</th> </tr> </thead> <tbody> <tr> <td>5</td> <td>5</td> </tr> </tbody> </table>	Boys	Girls	5	5													
Boys	Girls																	
5	5																	
Water Purifier Drinking Water:	Yes																	
Computers:	Yes																	
Other Observations	<p>A laptop, as well as a projector, is present. 10 desktops are donated by Educomp which are not in working condition. Students are taught basics in Word, Excel, and Paint. Computer Theory and Practical exam each of the 50 marks is conducted.</p>																	

Physical Infrastructure:

- No proper toilets are present for girl students in GUPS school.
- One can deploy eLite eToliet.

Sports Infrastructure:

- The common Playground is present between two schools which are an approximate size 20 m * 50 m.
- Football and Hockey Nets can be set up on either side of playground.
- Circular Running Track can be constructed.



C.9. Primary School, Jyothi Circle, Balmatta, Ward No-40

School Building Roof is leaky. Buckets are kept in the class room so that the water from the roof doesn't make the floor wet. The school building is in very bad state. Water gets choked in toilet. Current civil work undergoing iron rods kept in open has made the movement of children across the classroom a risky affair.

There are 35 students across standards 1st to 5th. Four teachers teaching five subjects.

The water purifier is donated by the State Bank of India (SBI). There are no chairs for teachers and students are made to sit on ground due to lack of benches. Poor lighting is present in classroom which makes students impossible to see what is written on blackboard.

Type of School:	Primary
Standards Covered:	1 st to 7 th Standard
Subjects Taught:	Kannada, English, Hindi, Maths, Social Studies, Science

DETAILED PROJECT REPORT – IMPLEMENTATION OF ESMART SCHOOLS IN ALL GOVERNMENT SCHOOLS

Total Number of Teachers in school:	Four -4		
Total Number of Students in school:	35		
Boys Girls Ratio per standard:	Standard	Boys	Girls
	1 st	0	0
	2 nd	2	0
	3 rd	1	3
	4 th	1	4
	5 th	0	9
	6 th	0	7
	7 th	0	8
	Total -35	4	31
Student Classroom Ratio (SCR):	35/7=5		
Pupil-Teacher Ratio (PTR):	Standard	Total	PTR = Student / Teacher
	1 st	0	0
	2 nd	2	0.5
	3 rd	4	1
	4 th	5	1.25
	5 th	9	2.25
	6 th	7	1.75
	7 th	8	2
Toilets:	Boys	Girls	
	1	1	
Water Purifier Drinking Water :	Yes		
Computers:	No		
Other Observations	School Building in a dilapidated state		

C.10. Secondary School Jyothi Circle, Balmatta, Ward No-40

Six subjects are taught by eight teachers. The student-teacher ratio is fine compared to other government schools. It is a girls' school.

Type of School:	Secondary		
Standards Covered:	8 th to 10 th		
Subjects Taught:	Kannada, English, Hindi, Maths, Social Studies, Science		
Total Number of Teachers in school:	8		
Total Number of Students in school:	103		
Boys Girls Ratio per standard:	Standard	Girls	
	8 th	24	
	9 th	41	
	10 th	38	
	Total	103	
Student Classroom Ratio (SCR):	103/3=34.33		
Pupil-Teacher Ratio (PTR):	Standard	Total	PTR = Student / Teacher
	8 th	24	3
	9 th	41	5.125
	10 th	38	4.75
Toilets:	30		
Water Purifier Drinking Water:	Two		
Computers:	Two		
Other Observations	This school is selected out of 100 schools in Karnataka under National Skill Qualification Framework. Students have to opt for any of the two courses: Course 1: Hindi Language. Course 2: Beauty/Wellness and HealthCare.		

C.11. GPUC, Balmatta, Ward No-40

Type of School:	Higher Secondary		
Standards Covered:	11 th to 12 th		
Subjects Taught:	PCM-Physics, Chemistry, Maths, Biology, Kannada, English, Sanskrit, Hindi		
Total Number of Teachers in school:	Nineteen -19		
Total Number of Students in school:	770		
Boys Girls Ratio per standard:	Standard	Girls	
	11 th	770	
	12 th		
	Total -770		
Student Classroom Ratio (SCR):	-		

DETAILED PROJECT REPORT – IMPLEMENTATION OF ESMART SCHOOLS IN ALL GOVERNMENT SCHOOLS

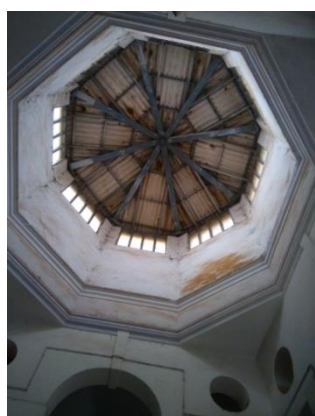
Pupil-Teacher Ratio (PTR):	Standard	Total	PTR = Student / Teacher
	11 th -	770	40.52
	12 th		
Toilets:	Girls		
	5		
Water Purifier Drinking Water:	Yes		
Computers:	Yes (10-15)		
Other Observations	Special mid-term classes are conducted for SC/ST students. A total of 15 computers is present. Short term courses are required : <ul style="list-style-type: none"> ✓ English Communication ✓ Personality Development ✓ IT/ITES ✓ Career guidance ✓ Pharmacy ✓ Architecture 		

Physical Infrastructure:

- A teacher's toilet is required. The place for the construction for toilet is identified.

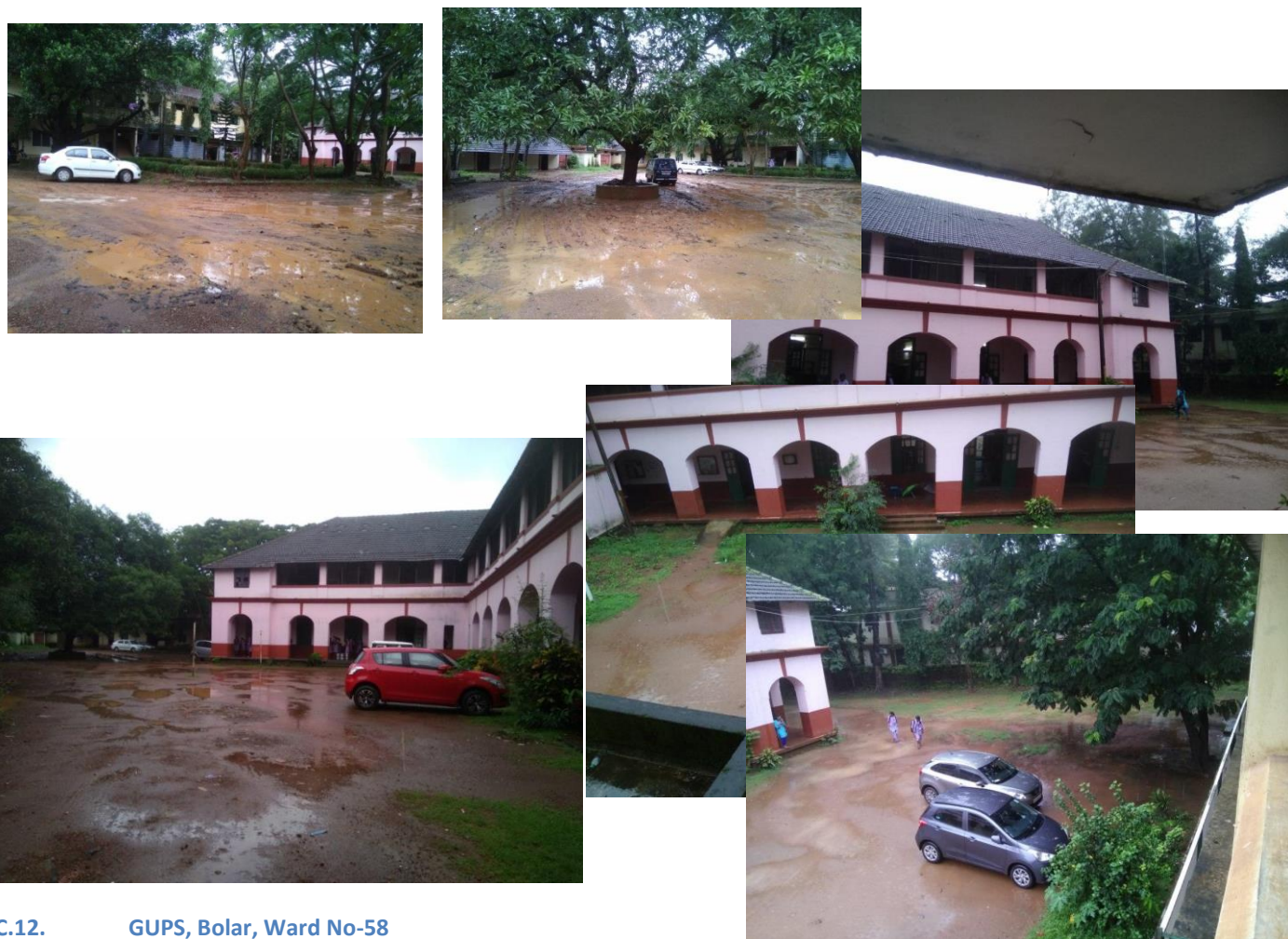


- Dome Roof needs repairing and heritage structure preserved.



- The water clogging issue is common in entire Jyothi Circle Balmatta Area.
- Another playground is bigger and has basketball poles on the ground. The ground could be readied for Basketball, Volleyball, and Throwball along with the proper coaching schedule for the girls.





C.12. GUPS, Bolar, Ward No-58

Six subjects are taught by four teachers. The nali-kali approach of education is used for Standard 1st to 3rd.

Type of School:	Primary with Upper Primary		
Standards Covered:	1 st to 7 th		
Subjects Taught:	Kannada, English, Hindi, Maths, Social Studies, Science		
Total Number of Teachers in school:	4		
Total Number of Students in school:	52		
Boys Girls Ratio per standard:	Standard	Boys	Girls
	1 st	4	5
	2 nd	0	4
	3 rd	3	3
	4 th	4	3
	5 th	3	7
	6 th	7	4
	7 th	3	2
	Total	24	28
Student Classroom Ratio (SCR):	52/5=10.4		
Pupil-Teacher Ratio (PTR):	Standard	Total	PTR = Student/ Teacher
	1 st	9	2.25
	2 nd	4	1
	3 rd	6	1.5
	4 th	7	1.75
	5 th	10	2.5

DETAILED PROJECT REPORT – IMPLEMENTATION OF ESMART SCHOOLS IN ALL GOVERNMENT SCHOOLS

	6 th	11	1.57
	7 th	5	1.25
Computers:	Four		
Other Observations	Ground 20m x 30m.		

C.13. GUPS, Bolar West (Urdu), Ward No-58

Six subjects are taught by three teachers. The nali-kali approach of education is used for Standard 1st to 3rd.

Type of School:	Primary with Upper Primary		
Standards Covered:	1 st to 7 th		
Subjects Taught:	Kannada, English, Hindi, Maths, Social Studies, Science		
Total Number of Teachers in school:	3		
Total Number of Students in school:	25		
Boys Girls Ratio per standard:	Standard	Boys	Girls
	1 st	1	1
	2 nd	3	2
	3 rd	3	2
	4 th	3	1
	5 th	0	4
	6 th	1	2
	7 th	1	1
	Total	12	13
Student Classroom Ratio (SCR):	25/5=5		
Pupil-Teacher Ratio (PTR):	Standard	Total	PTR = Student/ Teacher
	1 st	2	0.67
	2 nd	5	1.67
	3 rd	5	1.67
	4 th	4	1.33
	5 th	4	1.33
	6 th	3	1
	7 th	2	0.67
Computers:	Three		
Other Observations	Ground 20m x 30m.		

C.14. Government Higher Primary School, Car Street, Ward No-43

Type of School:	High School		
Standards Covered:	8 th to 10 th		
Subjects Taught:	Kannada, English, Hindi, Maths, Social Studies, Science, Drawing and Physical Education.		
Total Number of Teachers in school:	8		
Total Number of Students in school:	44		
Boys Girls Ratio per standard:	Standard	Girls	
	8 th	6	
	9 th	21	
	10 th	17	
	Total	44	
Student Classroom Ratio (SCR):	44/3=14.6		
Pupil-Teacher Ratio (PTR):	Standard	Total	PTR = Student/ Teacher
	8 th	6	0.75
	9 th	21	2.625
	10 th	17	2.125

Computers:	Basic Computer operations on how to use MICROSOFT Excel, WORD, PowerPoint is being taught.
Other Observations	Mid-day meal food is provided by ISCKON Foundation Akshay Patra. Drinking-Water is available. Volleyball and Kabbadi court is present in premises.

C.15. Government PU College Women, Car Street, Ward No-43

Type of School:	Govt PU Girls College		
Standards Covered:	11 th and 12 th		
Subjects Taught:	Kannada, English, History, Economics, Political Science, Sociology, Business Studies, Accountancy, Physics, Chemistry, Mathematics, Biology		
Total Number of Teachers in school:	11		
Total Number of Students in school:	226		
Boys Girls Ratio per standard:	Standard	Girls	
	11 th	124	
	12 th	102	
	Total	226	
Student Classroom Ratio (SCR):	226/4=56.5		
Pupil-Teacher Ratio (PTR):	Standard	Total	PTR = Student/ Teacher
	11 th	124	11.27
	12 th	102	9.27
Computers:	Not available for Students		
Other Observations	Volleyball Ground is present. ICT Course is not conducted for the past three years. Dedicated Laboratories for conducting Physics, Chemistry, and Biology are available. The library is present on the 1 st floor but no librarian is appointed. CCTV Cameras are installed in every classroom and Monitor and DVR is present in Principal Room. 14 Toilets are provided to students. One Toilet for Principal, One toilet for Supporting staff and two toilets for teaching staff. TALP training program was imparted to teachers under State govt initiative which would help teachers in teaching students through projector.		

DETAILED PROJECT REPORT – IMPLEMENTATION OF ESMART SCHOOLS IN ALL GOVERNMENT SCHOOLS


Annexure D: Responses and Compliance to the Points Raised in the 15th ICT Technical Committee Meeting held on 20.03.19 under the Chairmanship of General Manager (Tech), KUIDFC for the DPR review of eSmart School Project under Mangaluru Smart City Limited

Sr. no.	Suggestion by TC	Compliance
a.	Obtain a confirmation letter from DSERT for having vetted list of schools proposed for ICT development in this project to avoid duplication of project. The letter is to be annexed in the Final DPR.	Letter to be sent to DSERT emailed by PMC to MSCL on April 04, 2019 and MSCL to DSERT on April 10, 2019.
b.	The Furniture requirement for a dedicated Smart classroom may be included in the present proposal as separate line items through proper quotes with detailed Technical specifications.	Complied (DPR Updated)
c.	Digital content will be, provided by DSERT. Any new content is to be approved by DSERT for its curriculum requirement for the targeted classes.	Letter to be sent to DSERT emailed by PMC to MSCL on April 04, 2019 and MSCL to DSERT on April 10, 2019.
d.	When defining component specifications in the DPR, ensure that it is vendor-agnostic by avoiding specific brand names.	Complied (DPR Updated)
e.	Verify with EDUSAT, for the content available, as a free download or on license mode for streaming at schools. The details to be furnished in the DPR.	Letter to be sent to DSERT emailed by PMC to MSCL on April 04, 2019 and MSCL to DSERT on April 10, 2019.
f.	Adopt open source software/OS.	Complied (DPR Updated)
g.	The proposed 'all in one device' is reported to be capable of projecting on any hard surface. Hence the provision for projector screen to be revisited for its requirement and justified. In case of requirement, the detailed technical specification for the same may be included in the line item of the BOQ.	Complied (DPR Updated)
h.	Manpower to be properly assessed and indicated as line items in the DPR with proper justification.	Complied (DPR Updated)
i.	The bandwidth requirement for each classroom/school to be ascertained. Rates for the same to be collected from local vendor/ISPs like BSNL etc. and included in the DPR.	Complied (DPR Updated)
j.	As CCTV surveillance is out of the scope of this project, exclude the items from this project and the same may be considered as a separate project with the approval of the MSCL board.	Complied (DPR Updated)
k.	School wise matrix, with quantification of ICT components and other relevant details to be tabulated and appended to the DPR.	Based on student strength of each school, three types of solutions were proposed. School wise BoQ is incorporated in DPR.
l.	Capex & Opex components to be determined separately and year-wise opex shall be clearly documented as line items.	Complied (DPR Updated)
m.	Minimum Replacement cost Of vulnerable devices/components not covered under warranty/guarantee to be included in the O&M cost. The Warranty/guarantee quotes of all components to be studied and estimates shall be reworked.	Complied (DPR Updated)
n.	As the completion of infrastructure repairs/developments in all schools is a pre-requisite for the installation of ICT components, MSCL shall match the timeline of "Implementation of E-smart schools- infrastructure development in all government schools – Package 1" and the current smart class room-ICT project. The tendering of the ICT project is to be properly decided, to ensure delivery of components at the right time, for optimum	To be taken up in the tendering process in concurrence with MSCL.

DETAILED PROJECT REPORT – IMPLEMENTATION OF ESMART SCHOOLS IN ALL GOVERNMENT SCHOOLS

Sr. no.	Suggestion by TC	Compliance
	warranty/guarantee period.	

Annexure E: Letter Sent to DSERT by MSCL on 10-April-2019


MANGALI
MANGALURU SMART CITY LIMITED
ಮಂಗಳೂರು ಸ್ಮಾರ್ಟ್ ಸಿಟಿ ಲಿಮಿಟೆಡ್

Address: M.G. ROAD, LALBAGH, MANGALURU-575003, DAKSHINA KANNADA, KARNATAKA.
ವಿಳಾಸ : ಎಮ್.ಜಿ. ರಸ್ತೆ, ಲಾಲ್‌ಬಾಗ್, ಮಂಗಳೂರು - 575003, ದಕ್ಷಿಣ ಕನ್ನಡ, ಕರ್ನಾಟಕ.
CIN: U74999KA2017PLC102010 Phone: 0824-2986321
Email id: smartcitymangaluru@gmail.com Website: www.mangalorecity.mrc.gov.in

REF:- MSCL/TECH/CR/04/2019-20/35 Dated:- 10/04/2019

To,
The Director, DSERT
Department of State Education Research and Training,
#4, 100 Feet Ring Road, BSK 3rd Stage,
Hosakerehalli,
Bengaluru - 560 085.

E Smart
Rajit / Kiran
OR
18/4

Dear Sir,

Subject: E-Smart School Project of Mangaluru Smart City.

Mangaluru Smart City Projects include a project on eSmart Schools that include total 15 government institutions (list enclosed), 8 Primary and Middle Schools, 5 High Schools and 2 PU Colleges, in the identified ABD (Area Based Development) area of the Mangaluru Smart City. The smart classroom setup proposed under this project may require the integration with the educational resources made available by the Department of State Educational Research and Training directly or through its initiatives such as DIKSHA and EDUSAT etc.

MSCL understand DIKSHA is the platform that enables:

- Content contribution in the context of curriculum and training for teachers and students.
- creators to use a tool as well as templates of their choice and demonstrate their capabilities
- Statistical reporting of content use and ratings from the users.

MSCL request your approval in allowing the use of learning materials available in DSERT and integration of the Smart Classroom System with DIKSHA. We assure you that any new content created under the eSmart School project of Mangaluru Smart City will take concurrence from DSERT. Kindly share the process that teachers creating the same may need to follow to take the corresponding approvals from DSERT.

MSCL request your confirmation if EDUSAT as eLearning initiative is and will be available for integration with this project. The integration could be through the free download or through streaming of educational content for the students and teachers of these schools under the scope of eSmart School Project.

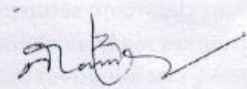
Also MSCL have compared the provisions made under the scheme of District Institution of Education and Training, Mangalore and the ICT solution proposed under eSmart School Project to ensure there are no duplication of efforts. The comparison is given below. Kindly confirm the absence of any duplication of efforts and resources provided under these schemes.

Provisions by District Institution Of Education and Training, Mangalore				ICT Solution Proposed under eSmart School Project of Mangaluru Smart City
Taluk Name	Name Of School	Material Supplied		
		Laptop	LCD Projector	
Mangalore North	DKZP Govt. Pre-University College (Women's), Car Street	No	No	80-Netbooks 4-All-in-One Devices 4-Access Point Cum Wireless Routers
Mangalore North	DKZP Govt. Pre-University College, Balmatta	No	No	4-Carts for All-in-One Device 4-UPSes For Power Back up of Large Screen Display 40-School Benches
Mangalore South	DKZP Govt. Practicing High School, Mangalore	No	No	20-Netbooks 1-All In One Devices
Mangalore South	DKZP Govt. High School, Hoigebazar	No	No	1- Access Point Cum Wireless Routers 1- Carts for All-in-One Device
Mangalore North	DKZP Govt. High School, Bunder (Urdu)	Yes	Yes	1-UPSes For Power Back up of Large Screen Display 10-School Benches

MSCL request your guidance and concurrence in the eSmart School Project of Mangaluru Smart City to make it a success story that can be extended for all the schools in the city.

Thanking you,

Yours sincerely



Managing Director

Mangaluru Smart city Limited



Enclosed:

List of Government Schools in ABD area under eSmart School project of Mangaluru Smart City

School Category	Government Schools in ABD area under eSmart School project of Mangaluru Smart City	No of Schools
Primary Schools	<ol style="list-style-type: none"> 1. GUPS, Basthigarden, Ward No-41 2. GUPS, Neereshwalya, Ward No-45 3. GLPS, Hoigebazar, Ward No-57 	3
Primary and Middle Schools	<ol style="list-style-type: none"> 1. GUPS, Pandeshwara, Ward No-46 2. GUPS, Bunder (Urdu), Ward No-44 3. Primary School, Jyothi Circle, Balmatta, Ward No-40 4. GUPS, Bolar, Ward No-58 5. GUPS, Bolar West (Urdu), Ward No-58 	5
High School	<ol style="list-style-type: none"> 1. GHS, Hoigebazar, Ward No-57 2. Government Practicing HS, Mangaluru, Ward No-46 3. Secondary School Jyothi Circle, Balmatta, Ward No-40 4. GHS, Bunder (Urdu), Ward No-44 5. Govt High School Car Street Ward No-43 	5
PU College	<ol style="list-style-type: none"> 1. GPUC, Balmatta, Ward No-40 2. Govt PU College Women Car Street, Ward No-43 	2

[Handwritten Signature]

I.N - 308
12/4/19

Annexure F: Response from DSERT to MSCL on 22-May-2019


Government of Karnataka

ಅವ್ಯಕ್ತ ಶಿಕ್ಷಣ ಸಂಶೋಧನೆ ಮತ್ತು ತರಬೇತಿ ಇಲಾಖೆ
DEPARTMENT OF STATE EDUCATIONAL RESEARCH AND TRAINING

No 4, 100 FT RING ROAD, BANASHANKARI 3RD STAGE BENGALURU - 560 085
Email: dpi.dsert-ka@nic.in Website: <http://dsert.kar.nic.in>

Phone - 080
26080100
Fax - 080
26422377

No:Dpi/DSERT/e-con/ಇಪದ/113/2018-19 Date:22-05-2019

TO,
The Managing Director
Mangaluru Smart City Limited
M.G. Road Lalbagh
Mangaluru- 575003

Sir,

Sub: E- Smart School Project REG

Ref : Your office letter no. MSCL/ TECH/04/ 2019-20/35

The letter under reference is examined. This is to confirm that there is no duplication of resources in the schools referred to.

Dsert has developed, curated and localized some e-content and is made available on DIKSHA platform. Any teacher can access them, and use it for classroom transaction. The content can also be accessed through Web site- dsert.kar.nic.in, http://kasp/learning_material.asp under learning material and also in Diksha.gov.in/explore. The resources are available under CC By S.A 0.4 (Creative Commons Share Alike)

There are certain procedures to upload the content developed by teachers. To have a deeper understanding of the same, the DIET principal may be contacted.

The EDUSAT program is available on specified day and at specified time and can be obtained by installing a dish antenna.

DSERT assures its support and concurrence for the e-smart school project. Any further assistance can be obtained by contacting principal DIET Mangaluru. Ph No:9448999366.

Thanking you

Yours faithfully


DIRECTOR DSERT
BANGALORE

Annexure G: Responses and Compliance to the Points Raised in the 17th ICT Technical Committee Meeting held on 17.05.19 under the Chairmanship of General Manager (Tech), KUIDFC for the DPR review of eSmart School Project under Mangaluru Smart City Limited

Suggestion by TC on 17-May-2019	Compliance
Reply from DSERT for vetting of list of schools proposed needs to be obtained.	Refer Annexure F
There is no requirement for developing new content. Content needs to be from DSERT.	-
Resource person management and strategy for systematic implementation of the project needs to be elaborated in the DPR	Refer section 4.17 of the DPR regarding the work plan. The cost of manpower is calculated based on the quotation present in Annexure I.
Place the current project on-hold until Package 1- infrastructure development is nearing completion. It was also suggested to wait until the technical and financial evaluations of Smart School projects tendered by other Smart Cities are completed to evaluate the response and make changes in the proposal, if required, before tendering the project.	-

Annexure H: Quotation from Local ISP (Deenet Internet Services Pvt Ltd.)/RailTail/BSNL



A V <avani1985@gmail.com>

Quotations required for Mangaluru Smart City internet connectivity for government schools

2 messages

maresh@deenetservices.net <maresh@deenetservices.net> Fri, Nov 15, 2019 at 4:11 PM
 To: avani1985@gmail.com
 Cc: info@deenetservices.net, Deenet Services Pvt Ltd <sujith@deenetservices.net>, deekshith@deenetservices.net, deenetservices@gmail.com

Hello,

Greetings from DeeNet,

Thank you for giving us the opportunity to serve you . We appreciate your business and the confidence you have placed in us. Here I am sharing suitable plans and its cost,

Particular	MONTHLY COST	YEARLY COST
8 MBPS	999	11988
10 MBPS	1299	15588

18 % GST applicable on all plans

Installation charges is Rs.3000 per each site

Regards,

Mahesh Kumar
 IT Support Team.



Mobile:8660352887

----- Original Message -----

Subject: Re: Quotations required for Mangaluru Smart City internet connectivity for government schools
 Date: Friday, November 15, 2019 12:07 IST
 From: A V <avani1985@gmail.com>
 To: info@deenetservices.net
 References:

As discussed, please find the requirements from MSCL and list of locations where connectivity needs to be established.

- GUPS, Basthigarden, Ward No-41
- GUPS, Neereshwalya, Ward No-45
- GLPS, Hoigebazar, Ward No-57
- GUPS, Pandeshwara, Ward No-46

BSNL : http://karnataka.bsnl.co.in/broadband/FTTH%20Plans_SSA%20specific.pdf.

RailTail RailWire : <https://www.railwire.co.in/tariffs-and-plans.php>

Annexure I.1: Quotation from Vendor for All in one Device



Schoolnet India Limited
(formerly IL&FS Education & Technology Services Limited)

NTBCL Building
Toll Plaza, DND Flyway
NOIDA - 201 301
Uttar Pradesh
India

T +91 120 2459 200
F +91 120 2459 201
W www.ilfseducation.com
(CIN U80220MH1997PLC112535)

Date: 15-Nov-19

To,
The M.D.
Mangalore Smart City Limited
Mangalore, Karnataka

Subject – Quotation for All in One Device with Educational Content

Dear Sir

Greetings from Schoolnet India Limited

We, Schoolnet India Limited (formerly IL&FS Education and Technology Services Limited), incorporated in 1997, are India’s leading social infrastructure development company which focus on creating scalable solutions using technology as a key driver. Through our work in Education, Skills Development and Cluster Development projects/initiatives, we are impacting more than 15 Mn people across India, Africa and South Asia and Middle East.

We are pleased to submit our financial proposal for “All in one device with education content pre loaded” for your kind consideration.

S. No.	Solution Name	Technical Specification	A/U	Nos	Price per unit (without Taxes)
1.	All in one device with education content pre loaded	Integrated Teaching Learning Device <ul style="list-style-type: none"> • Intel i3 Processor, • 1 TB HDD, • 4 GB RAM, • 3000 Lumens projector with 18000:1 contrast ratio, • DVD Rom Drive, • 30W speakers, • OpenSource OS, • Interactivity with Stylus, • Strolley Bag. • UL Certificate for All in One Device (Compulsory) • Multimedia Content in Kannada compliant to Karnataka State Board Syllabus with inputs from Department of Primary & Secondary Education / Karnataka State Board / DSERT for provisioning of approved content for the classes envisaged by the school authority, • digitized English learning solution mapped with state board syllabus 	Nos	1	1,94,000/-

Regd. Office : The IL&FS Financial Centre, 3rd Floor, Plot C22, G Block Bandra Kurla Complex, Bandra (East), Mumbai - 400 051

Commercial Terms and Condition

- Above quoted prices are exclusive of taxes and duties
- GST @ 18% would be charged extra on above mentioned price
- Warranty: 1 years from date of installation and commissioning
- Project Management and operation cost would be 10% per year of above quoted value.

We sincerely hope the above is in line. In case of further clarification please contact under signed.

Thanking you and looking forward to serve your esteemed organization.

For Schoolnet India Limited



Deepak Kumar Singh
Pre-Sales Dept
(M) +91 9654774915
(e) deepakkumar.singh@schoolnetindia.com

Regd. Office : The IL&FS Financial Centre, 3rd Floor, Plot C22, G Block Bandra Kurla Complex,
Bandra (East), Mumbai - 400 051

Annexure I.2: Quotation from Vendor for Charging Cart



Schoolnet India Limited
(formerly IL&FS Education & Technology Services Limited)

NTBCL Building
Toll Plaza, DND Flyway
NOIDA - 201 301
Uttar Pradesh
India

T +91 120 2459 200
F +91 120 2459 201
W www.ilfseducation.com
(CIN U80220MH1997PLC112535)

Date: 15-Nov-19

To,
The M.D.
Mangalore Smart City Limited
Mangalore, Karnataka

Subject – Quotation for Charging Cart for Netbooks

Dear Sir

Greetings from Schoolnet India Limited

We, Schoolnet India Limited (formerly IL&FS Education and Technology Services Limited), incorporated in 1997, are India’s leading social infrastructure development company which focus on creating scalable solutions using technology as a key driver. Through our work in Education, Skills Development and Cluster Development projects/initiatives, we are impacting more than 15 Mn people across India, Africa and South Asia and Middle East.

We are pleased to submit our financial proposal for “Charging Cart for Netbook” for your kind consideration.

S. No.	Solution Name	Technical Specification	A/U	Nos	Price per unit (without Taxes)
1.	Charging Cart for Netbook	Lockable Netbook Cart with in-built storage & charging points – <ul style="list-style-type: none"> • Body: Charging Cart body should be made up of galvanic powder coated with proper chemical treatment from inside and outside. • Security: The main door should have lock and key facility. • Handle: One handle to pull/ move cart easily from one place to another. • Movable Charging Cart with mobile facility by adding heavy duty casters 360 degree movement. • Air Ventilation: Cart should have air ventilation from three sides including main doors. • Switch and socket: Each and every Netbook should have individual connectivity through charging adaptor to switch and socket of 5amps or 6amp. • Capacity to charge the netbooks should be 20 units. 	Nos	1	42,000/-

Regd. Office : The IL&FS Financial Centre, 3rd Floor, Plot C22, G Block Bandra Kurla Complex, Bandra (East), Mumbai - 400 051

Commercial Terms and Condition

- Above quoted prices are exclusive of taxes and duties
- GST @ 18% would be charged extra on above mentioned price
- Warranty: 1 years from date of installation and commissioning
- Project Management and operation cost would be 10% per year of above quoted value.

We sincerely hope the above is in line. In case of further clarification please contact under signed.

Thanking you and looking forward to serve your esteemed organization.

For Schoolnet India Limited



Deepak Kumar Singh
Pre-Sales Dept
(M) +91 9654774915
(e) deepakkumar.singh@schoolnetindia.com

Regd. Office : The IL&FS Financial Centre, 3rd Floor, Plot C22, G Block Bandra Kurla Complex,
Bandra (East), Mumbai - 400 051

Annexure I.3: Quotation from Vendor for NetBook and Management Console



Schoolnet India Limited
(formerly IL&FS Education & Technology Services Limited)

NTBCL Building
Toll Plaza, DND Flyway
NOIDA - 201 301
Uttar Pradesh
India

T +91 120 2459 200
F +91 120 2459 201
W www.ilfseducation.com
(CIN U80220MH1997PLC112535)

Date: 15-Nov-19

To,
The M.D.
Mangalore Smart City Limited
Mangalore, Karnataka

Subject – Quotation for Student Devices: Netbook and Chrome Management Console

Dear Sir

Greetings from Schoolnet India Limited

We, Schoolnet India Limited (formerly IL&FS Education and Technology Services Limited), incorporated in 1997, are India’s leading social infrastructure development company which focus on creating scalable solutions using technology as a key driver. Through our work in Education, Skills Development and Cluster Development projects/initiatives, we are impacting more than 15 Mn people across India, Africa and South Asia and Middle East.

We are pleased to submit our financial proposal for “Netbook and Chrome Management Console” for your kind consideration.

S. No.	Solution Name	Technical Specification	A/U	Nos	Price per unit (without Taxes)
1.	Netbook	Netbook - <ul style="list-style-type: none"> • CPU- Dual Core or higher, • Chipset – Intel/AMD, • Hard Disk- 32 GB eMMC or higher • RAM -4 GB DDR 3 or higher, • Screen Size-11.6 " or higher, • Screen Resolution-1366 x 768 or higher, • Connectivity-Wi-Fi, • Operating System- Chrome. 	Nos	1	24,980/-
2.	Chrome Management Console for Netbook	Google Chrome Management Console License(CMC) – <ul style="list-style-type: none"> • Web-Based interface, Lock Devices, Push apps and extensions, Enforce policies, Administer tests at scale and features required for management of devices & learning outcomes. • Licence on perpetual basis • (OEM authorization to bidder/partner for CMC to be provided) 	Nos	1	2,500/-
Total					27,480/-

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Commercial Terms and Condition

- Above quoted prices are exclusive of taxes and duties
- GST @ 18% would be charged extra on above mentioned price
- Warranty: 1 years from date of installation and commissioning
- Project Management and operation cost would be 10% per year of above quoted value.

We sincerely hope the above is in line. In case of further clarification please contact under signed.

Thanking you and looking forward to serve your esteemed organization.

For Schoolnet India Limited



Deepak Kumar Singh
Pre-Sales Dept
(M) +91 9654774915
(e) deepakkumar.singh@schoolnetindia.com

Regd. Office : The IL&FS Financial Centre, 3rd Floor, Plot C22, G Block Bandra Kurla Complex,
Bandra (East), Mumbai - 400 051

Annexure I.4: Quotation from Vendor for Trolley

SCHOOLNET

Schoolnet India Limited

(formerly IL&FS Education & Technology Services Limited)

NTBCL Building
Toll Plaza, DND Flyway
NOIDA - 201 301
Uttar Pradesh
India

T +91 120 2459 200
F +91 120 2459 201
W www.ilfseducation.com

(CIN U80220MH1997PLC112535)

Date: 15-Nov-19

To,
The M.D.
Mangalore Smart City Limited
Mangalore, Karnataka

Subject – Quotation for Trolley for All in One Device

Dear Sir

Greetings from Schoolnet India Limited

We, Schoolnet India Limited (formerly IL&FS Education and Technology Services Limited), incorporated in 1997, are India’s leading social infrastructure development company which focus on creating scalable solutions using technology as a key driver. Through our work in Education, Skills Development and Cluster Development projects/initiatives, we are impacting more than 15 Mn people across India, Africa and South Asia and Middle East.

We are pleased to submit our financial proposal for “Trolley for All in One Device” for your kind consideration.

S. No.	Solution Name	Technical Specification	A/U	Nos	Price per unit (without Taxes)
1.	Trolley for All in One Device	<ul style="list-style-type: none"> Movable Trolley for All in One device. Separate provisions All in One device Provision to keep Key board and Mouse 	Nos	1	10,000/-



Commercial Terms and Condition

- Above quoted prices are exclusive of taxes and duties
- GST @ 18% would be charged extra on above mentioned price
- Warranty: 1 years from date of installation and commissioning
- Project Management and operation cost would be 10% per year of above quoted value.

We sincerely hope the above is in line. In case of further clarification please contact under signed.

Thanking you and looking forward to serve your esteemed organization.

For **Schoolnet India Limited**



Deepak Kumar Singh
Pre-Sales Dept
(M) +91 9654774915
(e) deepakkumar.singh@schoolnetindia.com

Regd. Office : The IL&FS Financial Centre, 3rd Floor, Plot C22, G Block Bandra Kurla Complex, Bandra (East), Mumbai - 400 051

Annexure I.5: Quotation from Vendor for Wi-Fi Dongle

SCHOOLNET

Schoolnet India Limited

(formerly IL&FS Education & Technology Services Limited)

NTBCL Building
Toll Plaza, DND Flyway
NOIDA - 201 301
Uttar Pradesh
India

T +91 120 2459 200
F +91 120 2459 201
W www.ilfseducation.com

(CIN U80220MH1997PLC112535)

Date: 15-Nov-19

To,
The M.D.
Mangalore Smart City Limited
Mangalore, Karnataka

Subject – Quotation for Wifi Dongle

Dear Sir

Greetings from Schoolnet India Limited

We, Schoolnet India Limited (formerly IL&FS Education and Technology Services Limited), incorporated in 1997, are India’s leading social infrastructure development company which focus on creating scalable solutions using technology as a key driver. Through our work in Education, Skills Development and Cluster Development projects/initiatives, we are impacting more than 15 Mn people across India, Africa and South Asia and Middle East.

We are pleased to submit our financial proposal for “Wifi Dongle” for your kind consideration.

S. No.	Solution Name	Technical Specification	A/U	Nos	Price per unit (without Taxes)
1.	Wifi Dongle	<ul style="list-style-type: none"> Sleek compact design to be connected through computer’s USB port 	Nos	1	850/-

Commercial Terms and Condition

- Above quoted prices are exclusive of taxes and duties
- GST @ 18% would be charged extra on above mentioned price
- Warranty: 1 years from date of installation and commissioning
- Project Management and operation cost would be 10% per year of above quoted value.

We sincerely hope the above is in line. In case of further clarification please contact under signed.

Thanking you and looking forward to serve your esteemed organization.

For **Schoolnet India Limited**

Deepak Kumar Singh
Pre-Sales Dept
(M) +91 9654774915
(e) deepakkumar.singh@schoolnetindia.com

Regd. Office : The IL&FS Financial Centre, 3rd Floor, Plot C22, G Block Bandra Kurla Complex, Bandra (East), Mumbai - 400 051

Annexure I.6: Quotation from Vendor for UPS



Schoolnet India Limited
(formerly IL&FS Education & Technology Services Limited)

NTBCL Building Toll Plaza, DND Flyway NOIDA - 201 301 Uttar Pradesh India	T +91 120 2459 200 F +91 120 2459 201 W www.wilfseducation.com (CIN U80220MH1997PLC112535)
---	---

Date: 15-Nov-19

To,
The M.D.
Mangalore Smart City Limited
Mangalore, Karnataka

Subject – Quotation for 1 KVA UPS

Dear Sir

Greetings from Schoolnet India Limited

We, Schoolnet India Limited (formerly IL&FS Education and Technology Services Limited), incorporated in 1997, are India’s leading social infrastructure development company which focus on creating scalable solutions using technology as a key driver. Through our work in Education, Skills Development and Cluster Development projects/initiatives, we are impacting more than 15 Mn people across India, Africa and South Asia and Middle East.

We are pleased to submit our financial proposal for “UPS” for your kind consideration.

S. No.	Solution Name	Technical Specification	A/U	Nos	Price per unit (without Taxes)
1.	1 KVA of UPS with 30 minutes power backup	1 KVA of UPS with 30 minutes power backup <ul style="list-style-type: none"> • Capacity - 1000VA/600W • Input voltage - 230V AC, 140 – 300VA, 50HZ • Output - 230V +/- 10 %, 50 Hz +/- 1Hz, Simulated Sinewave • Battery - Battery Voltage - 12V DC, Floating Charging Voltage - 13.7 VDC +/- 2.0VDC, Maximum Charge Current- 5A/10A/15A/20A (Adjustable from Manufacturer) • Humidity - 0 to 95% Relative Humidity 	Nos	1	20,000/-

Commercial Terms and Condition

- Above quoted prices are exclusive of taxes and duties
- GST @ 18% would be charged extra on above mentioned price
- Warranty: 1 years from date of installation and commissioning
- Project Management and operation cost would be 10% per year of above quoted value.

Regd. Office : The IL&FS Financial Centre, 3rd Floor, Plot C22, G Block Bandra Kurla Complex, Bandra (East), Mumbai - 400 051

We sincerely hope the above is in line. In case of further clarification please contact under signed.

Thanking you and looking forward to serve your esteemed organization.

For **Schoolnet India Limited**



Deepak Kumar Singh
Pre-Sales Dept
(M) +91 9654774915
(e) deepakkumar.singh@schoolnetindia.com

Regd. Office : The IL&FS Financial Centre, 3rd Floor, Plot C22, G Block Bandra Kurla Complex,
Bandra (East), Mumbai - 400 051

Annexure I.7: Quotation from Vendor for Router/Wireless Access Point

SCHOOLNET

Schoolnet India Limited
(formerly IL&FS Education & Technology Services Limited)

NTBCL Building
Toll Plaza, DND Flyway
NOIDA - 201 301
Uttar Pradesh
India

T +91 120 2459 200
F +91 120 2459 201
W www.ilfseducation.com
(CIN U80220MH1997PLC112535)

Date: 15-Nov-19

To,
The M.D.
Mangalore Smart City Limited
Mangalore, Karnataka

Subject – Quotation for Wireless Router

Dear Sir

Greetings from Schoolnet India Limited

We, Schoolnet India Limited (formerly IL&FS Education and Technology Services Limited), incorporated in 1997, are India’s leading social infrastructure development company which focus on creating scalable solutions using technology as a key driver. Through our work in Education, Skills Development and Cluster Development projects/initiatives, we are impacting more than 15 Mn people across India, Africa and South Asia and Middle East.

We are pleased to submit our financial proposal for “Wireless Router” for your kind consideration.

S. No.	Solution Name	Technical Specification	A/U	Nos	Price per unit (without Taxes)
1.	Wireless Router	Wireless router which has both functionalities of a router and a access point in a single unit • Devices Interfaces: IEEE 802.11 ac/n/g/b/a wireless LAN, 10/100/1000 Gigabit WAN port • Data Signal rate: 5 GHz, 1.2 Gbps, should able to support 2.4 GHz	Nos	1	20,000/-

Commercial Terms and Condition

- Above quoted prices are exclusive of taxes and duties
- GST @ 18% would be charged extra on above mentioned price
- Warranty: 1 years from date of installation and commissioning
- Project Management and operation cost would be 10% per year of above quoted value.

We sincerely hope the above is in line. In case of further clarification please contact under signed.

Thanking you and looking forward to serve your esteemed organization.

For **Schoolnet India Limited**



Deepak Kumar Singh
Pre-Sales Dept
(M) +91 9654774915
(e) deepakkumar.singh@schoolnetindia.com

Regd. Office : The IL&FS Financial Centre, 3rd Floor, Plot C22, G Block Bandra Kurla Complex, Bandra (East), Mumbai - 400 051

Annexure I.8: Quotation from Vendor for Bench



Schoolnet India Limited
(formerly IL&FS Education & Technology Services Limited)

NTBCL Building
Toll Plaza, DND Flyway
NOIDA - 201 301
Uttar Pradesh
India

T +91 120 2459 200
F +91 120 2459 201
W www.ilfseducation.com
(CIN U80220MH1997PLC112535)

Date: 15-Nov-19

To,
The M.D.
Mangalore Smart City Limited
Mangalore, Karnataka

Subject – Quotation for Student Bench

Dear Sir

Greetings from Schoolnet India Limited

We, Schoolnet India Limited (formerly IL&FS Education and Technology Services Limited), incorporated in 1997, are India’s leading social infrastructure development company which focus on creating scalable solutions using technology as a key driver. Through our work in Education, Skills Development and Cluster Development projects/initiatives, we are impacting more than 15 Mn people across India, Africa and South Asia and Middle East.

We are pleased to submit our financial proposal for “Student bench” for your kind consideration.

S. No.	Solution Name	Technical Specification	A/U	Nos	Price per unit (without Taxes)
1.	Student Bench	<ul style="list-style-type: none"> Two seater Two seater desk and bench in single arrangement Particle board one side post-forming top, seat & back Powder coated sheet metal pipe frame Top/bench size- 1007 x 458 mm 	Nos	1	9500/-

Commercial Terms and Condition

- Above quoted prices are exclusive of taxes and duties
- GST @ 18% would be charged extra on above mentioned price
- Warranty: 1 years from date of installation and commissioning
- Project Management and operation cost would be 10% per year of above quoted value.

We sincerely hope the above is in line. In case of further clarification please contact under signed.

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Thanking you and looking forward to serve your esteemed organization.

For **Schoolnet India Limited**



Deepak Kumar Singh
Pre-Sales Dept
(M) +91 9654774915
(e) deepakkumar.singh@schoolnetindia.com

Regd. Office : The IL&FS Financial Centre, 3rd Floor, Plot C22, G Block Bandra Kurla Complex,
Bandra (East), Mumbai - 400 051

Annexure I.9: Quotation from Vendor for Manpower

SCHOOLNET

Schoolnet India Limited
(formerly IL&FS Education & Technology Services Limited)

NTBCL Building
Toll Plaza, DND Flyway
NOIDA - 201 301
Uttar Pradesh
India

T +91 120 2459 200
F +91 120 2459 201
W www.ilfseducation.com

(CIN U80220MH1997PLC112535)

Date: 15-Nov-19

To,
The M.D.
Mangalore Smart City Limited
Mangalore, Karnataka

Subject – Quotation for Manpower (IT Specialist)

Dear Sir

Greetings from Schoolnet India Limited

We, Schoolnet India Limited (formerly IL&FS Education and Technology Services Limited), incorporated in 1997, are India’s leading social infrastructure development company which focus on creating scalable solutions using technology as a key driver. Through our work in Education, Skills Development and Cluster Development projects/initiatives, we are impacting more than 15 Mn people across India, Africa and South Asia and Middle East.

We are pleased to submit our financial proposal for “Manpower” for your kind consideration.

S. No.	Profile	Experience	Nos	Cost per year
1.	Manpower (IT Specialist)	<ul style="list-style-type: none"> Educational Qualification – MCA / Bachelor degree in Engineering/Computer Science/BCA or equivalent Previous Experience - minimum 2 years’ experience in IT/ICT/IoT sector 	1	3,25,000/-

Commercial Terms and Condition

- Above quoted prices are exclusive of taxes and duties
- GST @ 18% would be charged extra on above mentioned price
- Warranty: 1 years from date of installation and commissioning
- Project Management and operation cost would be 10% per year of above quoted value.

We sincerely hope the above is in line. In case of further clarification please contact under signed.

Thanking you and looking forward to serve your esteemed organization.

For **Schoolnet India Limited**

Deepak Kumar Singh
Pre-Sales Dept
(M) +91 9654774915
(e) deepakkumar.singh@schoolnetindia.com

Regd. Office : The IL&FS Financial Centre, 3rd Floor, Plot C22, G Block Bandra Kurla Complex, Bandra (East), Mumbai - 400 051

Annexure I.10: Quotation from Vendor for Teacher Training



Schoolnet India Limited
(formerly IL&FS Education & Technology Services Limited)

NTBCL Building
Toll Plaza, DND Flyway
NOIDA - 201 301
Uttar Pradesh
India

T +91 120 2459 200
F +91 120 2459 201
W www.ilfseducation.com
(CIN U80220MH1997PLC112535)

Date: 15-Nov-19

To,
The M.D.
Mangalore Smart City Limited
Mangalore, Karnataka

Subject – Quotation for Teacher’s Training

Dear Sir

Greetings from Schoolnet India Limited

We, Schoolnet India Limited (formerly IL&FS Education and Technology Services Limited), incorporated in 1997, are India’s leading social infrastructure development company which focus on creating scalable solutions using technology as a key driver. Through our work in Education, Skills Development and Cluster Development projects/initiatives, we are impacting more than 15 Mn people across India, Africa and South Asia and Middle East.

We are pleased to submit our financial proposal for “Teacher training” for your kind consideration.

S. No.	Profile	Experience	Nos	Cost per teacher
1.	Teacher’s Training Program	Teachers Training 2 Days (To be conducted twice in a year) for batch size of 10 teachers <ul style="list-style-type: none"> • Building Digital Literacy in Teaching • Introduction to educational pedagogy and developing cross-curricular understanding by using ICT across the curriculum. • Bridging the gaps between traditional and modern teaching practices by integrating technology into teaching-learning spectrum. • Deepening Student Understanding by Using Interactive Multimedia Content, Science Experiments and Science Video to improve learning. • Classroom Management Skills 	1	850/-

Commercial Terms and Condition

- Above quoted prices are exclusive of taxes and duties
- GST @ 18% would be charged extra on above mentioned price

Regd. Office : The IL&FS Financial Centre, 3rd Floor, Plot C22, G Block Bandra Kurla Complex, Bandra (East), Mumbai - 400 051

We sincerely hope the above is in line. In case of further clarification please contact under signed.

Thanking you and looking forward to serve your esteemed organization.

For **Schoolnet India Limited**



Deepak Kumar Singh
Pre-Sales Dept
(M) +91 9654774915
(e) deepakkumar.singh@schoolnetindia.com

Regd. Office : The IL&FS Financial Centre, 3rd Floor, Plot C22, G Block Bandra Kurla Complex,
Bandra (East), Mumbai - 400 051

Annexure I.11: Quotation from Vendor for Electrical Wiring

SCHOLNET

Schoolnet India Limited

(formerly IL&FS Education & Technology Services Limited)

NTBCL Building
Toll Plaza, DND Flyway
NOIDA - 201 301
Uttar Pradesh
India

T +91 120 2459 200
F +91 120 2459 201
W www.wilfseducation.com

(CIN U80220MH1997PLC112535)

Date: 15-Nov-19

To,
The M.D.
Mangalore Smart City Limited
Mangalore, Karnataka

Subject – Quotation for Site Preparation, Electrical Wiring and Earthing

Dear Sir

Greetings from Schoolnet India Limited

We, Schoolnet India Limited (formerly IL&FS Education and Technology Services Limited), incorporated in 1997, are India’s leading social infrastructure development company which focus on creating scalable solutions using technology as a key driver. Through our work in Education, Skills Development and Cluster Development projects/initiatives, we are impacting more than 15 Mn people across India, Africa and South Asia and Middle East.

We are pleased to submit our financial proposal for “Electrical wiring and Earthing ” for your kind consideration.

S. No.	Solution	A/U	Nos	Price per Classroom
1.	Electrical Wiring for Classroom • Connection of UPS and all in One device	Nos	1	6,000/-
2.	Electrical Wiring for Computer lab • Connection of Chrome Cart and All in Device	Nos	1	8,000/-
3.	Earthing	Nos	1	9000/-

Commercial Terms and Condition

- Above quoted prices are exclusive of taxes and duties
- GST @ 18% would be charged extra on above mentioned price
- Project Management and operation cost would be 10% per year of above quoted value.

We sincerely hope the above is in line. In case of further clarification please contact under signed.

Thanking you and looking forward to serve your esteemed organization.

Regd. Office : The IL&FS Financial Centre, 3rd Floor, Plot C22, G Block Bandra Kurla Complex, Bandra (East), Mumbai - 400 051

For Schoolnet India Limited



Deepak Kumar Singh
Pre-Sales Dept
(M) +91 9654774915
(e) deepakkumar.singh@schoolnetindia.com

Regd. Office : The IL&FS Financial Centre, 3rd Floor, Plot C22, G Block Bandra Kurla Complex,
Bandra (East), Mumbai - 400 051

Annexure I.12: Quotation from Vendor for Painting

SCHOOLNET

Schoolnet India Limited

(formerly IL&FS Education & Technology Services Limited)

NTBCL Building
Toll Plaza, DND Flyway
NOIDA - 201 301
Uttar Pradesh
India

T +91 120 2459 200
F +91 120 2459 201
W www.ilfseducation.com

(CIN U80220MH1997PLC112535)

Date: 15-Nov-19

To,
The M.D.
Mangalore Smart City Limited
Mangalore, Karnataka

Subject – Quotation for Interior Work and Painting

Dear Sir

Greetings from Schoolnet India Limited

We, Schoolnet India Limited (formerly IL&FS Education and Technology Services Limited), incorporated in 1997, are India’s leading social infrastructure development company which focus on creating scalable solutions using technology as a key driver. Through our work in Education, Skills Development and Cluster Development projects/initiatives, we are impacting more than 15 Mn people across India, Africa and South Asia and Middle East.

We are pleased to submit our financial proposal for “Interior work and painting” for your kind consideration.

S. No.	Solution Name	Technical Specification	A/U	Nos	Price per Classroom
1.	Interior work	<ul style="list-style-type: none"> Assuming classroom size 400 Sqft Painting of classroom walls Decorating classroom with poster provided by Google 	Nos	1	20,000/-

Commercial Terms and Condition

- Above quoted prices are exclusive of taxes and duties
- GST @ 18% would be charged extra on above mentioned price
- Project Management and operation cost would be 10% per year of above quoted value.

We sincerely hope the above is in line. In case of further clarification please contact under signed.

Thanking you and looking forward to serve your esteemed organization.

For **Schoolnet India Limited**




Deepak Kumar Singh
Pre-Sales Dept
(M) +91 9654774915
(e) deepakkumar.singh@schoolnetindia.com

Regd. Office : The IL&FS Financial Centre, 3rd Floor, Plot C22, G Block Bandra Kurla Complex, Bandra (East), Mumbai - 400 051