Live Online Classes through Secured Web-based Learning Platform for Rural, Underprivileged Students

Prepared by: AdCept Technologies Pvt. Ltd.

Contents

Live Online Classes through Secured Web-based Learning Platform for Rural, Underprivileged Students

Executive Summary

COVID-19 is depriving many children of learning opportunities at school. Since there exists large inequities in access to the Internet, the problem is further exacerbated by uneven distribution of the technology needed to facilitate remote learning, and as a result rural students could not continue their learning during the pandemic. There are commercial platforms that offer remote learning but they require access to Internet and bandwidth to be effective. However the downside of Internet-based remote learning platforms are that they provide expose children to the Internet that raises concerns about the issue of children's digital safety. Hence it is critically important to address the potential dangers of children's exposure to online risks, including sexual exploitation, harmful content, inappropriate sharing of data and cyber-bullying. Furthermore, the sudden exposure to online classes gave rise to psychological and behavioral problems in children, arising out of addiction to video games and YouTube videos. The children suffered from rapid exposure to the Internet and were distracted due to absence of technology to prevent the children's exposure to the Internet during classes. To address all the above issues associated with remote online learning for children, AdCept proposes to utilize a locally-hosted, low-cost, open source-based web-conferencing platform for holding live online classes in regional language taught by local school teachers. The online learning platform shall take advantage of the wireless local area network (WLAN) for communication between the students and teacher conducting online classes. This proposal is for deploying dedicated, secured learning opportunities to the under-privileged students belonging to remote villages in the country overcoming the language barrier, where the learners are protected from the cyber security threats posed by the Internet during their classes.

Problem Statement

COVID-19 was declared a pandemic by the WHO on 12 March 2020. As the virus presented in different regions, governments responded, with the largest number of countries closing schools in March. At the peak of school closures in early April, 91 per cent of the world's learners were affected, with the majority experiencing country-wide closures. Unexpected school closures are shown to negatively influence children's learning outcomes. Crores of children rely on schools for free meals throughout the year. At the same time, school closures can expose children to violence (including sexual violence and forced marriage) at home and in their communities. Children's need for psychosocial support also increases as many children drop-out of school.

Proposed Solution

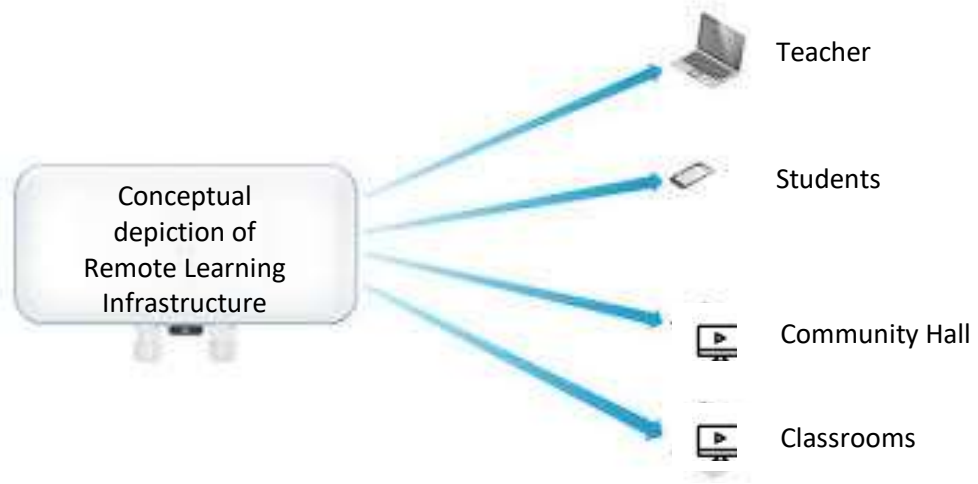
AdCept proposes to utilize a locally-hosted, open source-based, secured web-based learning platform for holding live online classes in regional languages taught by local school teachers. The online learning platform shall take advantage of the wireless local area network (WLAN), deployed and maintained by AdCept, for communication between the students and teachers conducting online classes. This proposal is for deploying dedicated, secured learning opportunities to the under-privileged students belonging to remote villages in the country overcoming the language barrier, where the learners are protected from the cyber security threats posed by the Internet during their classes.

The proposed solution is probably the need of the hour, considering the uncertainties and vagaries of the present pandemic situation, which is expected to continue in the near future. However it is imperative that our rural students under no circumstance can be deprived from their basic right to education. Furthermore, this platform in the future, may allow supplementing regular offline teaching in class by bringing in experienced teachers in subject matter.

Main Solution Components

Solution Architecture

1. Typically the server infrastructure will be installed in the school building or any other designated place along with the WiFi antenna, designed to provide2-4 Kms of network access to students in and around the surrounding villages.
2. The teachers will connect to the system through laptop, mobile phone or tablets. Similarly students can also connect to the system by the same method and attend the live classes.
3. Alternately, students can assemble in some community halls, local clubs which could be provided with a video screen connected to the above system. This will not require students to have their own mobile phones, laptops and tablets etc., which may not be available to these underprivileged students.



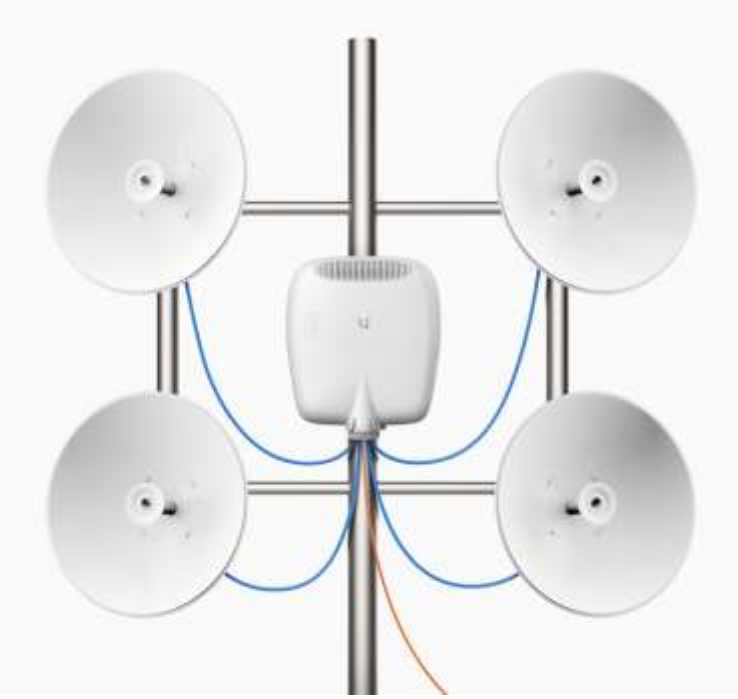
Server Computer

We propose to provide a business-class server by world renowned manufacturers like DELL, HP, etc.

CPU Frequency	Cores	L3 Cache	Power	QPI
2.3 GHz	18	45MB	145 W	9.6 GT/s

WiFi Infrastructure

Enterprise-class WiFi System comprising of Access Point, is an outdoor, high-performance, 802.11ac dual-band access point, capable of speeds up to 1750 Mbps.



Web-based learning platform

Features Include:

Documents Upload

Easy upload with the support for PDF, text, images and Microsoft PowerPoint, Word, and Excel documents

Whiteboard

Whiteboard annotation of slides for highlighting content

Breakout Rooms

Breakout rooms to get students engaged in collaborative learning

Video Options

Low, medium, and high-resolution video options that serve all levels of WIFI bandwidth

Chat

Public and private chat

Objective Review Questions

Quick and Easy Polling that Encourage More Student Engagement

Multi-User Whiteboard

Multi-user whiteboard for student engagement

Screen Share

Easy, intuitive screen sharing that keep students engaged

Hand Rise

A hand-raising feature

Emojis

Student feedback through the use of Emojis

Video Share

The ability to easily share video links within the main presentation area and playback is controlled by the instructor

List of Deliverables

Item	Description	Qty
A	**Hardware**	
1	Server computer from reputed manufacturers the likes of HP, DELL, etc.	1
2	Touch-enabled laptop from reputed manufacturers for teachers to teach	1
3	WiFi tabs for students	5
4	Wifi – Access Point	1 set
5	Tower for hoisting WiFi Antenna at school premises	1
6	UPS, Battery backup for power failures, Protection from electrical surges, etc. using	1 set
7	Network Switch	1
8	Cabinet for protection of network gear	1
9	Large networked LED screens for classes in schools, community halls etc.	1
B	**Software**	
1	Operating System	1
2	Network Management Software	1
3	Web-based Learning platform to be supplied free of cost	1
C	**Services**	
1	Site survey, Design, Develop, Supply, Delivery of the entire system including the following:	1 set
2	Installation & commissioning of the system	1 set
3	Training of teachers and students about the system	5 days
4	Annual support for the first year after installation. Hardware equipment would be covered by warranty of respective manufacturers.	1 year

Conclusion

The above system is necessary for continuing learning for the children in the times affected by pandemic and could also be used to supplement their learning in normal times. Special classes could also be held by experienced teachers remotely for the students. Let us join together to fulfill the basic requirement of our rural students' right to education and impart the required knowledgebase to become self-reliant and competitive in the future.