Next Generation Class Rooms for Developing Nations

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Please Note: All statistics furnished in this short write up are in close context with India and the information provided are either extracted from Indian government websites or the outcome of studies made in the Indian Sub Continent.

Motivation

Even tough India has built 4.02% of its GDP on education during 2001-2002, and has constructed one Higher Secondary schools for every 3 square kilometer and 1 primary school for every square kilometer almost 40% of the Indian Adults are yet to be made literate[1]. In recent days the quality of education provided in the rural belts of India has been under severe contempt. Lack of infrastructure, lack of efficient teaching staffs, etc has paved way for the poor quality of education for the kids in the rural belt. Its time for us to rethink about the approach we have opted to reach the destination EFA – Education For All in developing countries like India.

M.S.Swaminathan Research Foundation's (MSSRF) and India Space Research Organization's (ISRO) efforts to set up Village Resource Centers, Hubs and their success in helping villagers to achieve self sustained life has greatly encouraged us to think about a similar solution to improve the rural education using Information and Communication Technologies (ICT).

Objective

Our objective is to build an autonomous education system which will

1.) take education to the most interior rural territory of rural education
2.) improve the quality of the rural education and thus the literacy rate
3.) will help students to learn better with its animation and simulation based learning

Introduction

Education has always played a vital role in the development of a country and thus EFA tops every developing nation's to do list. In a country like India where almost 71% of the country still remains well within rural belt, EFA can only be achieved by reaching the unreachable in these most interior rural places. Setting up schools in these areas has turned out to be an option to decrease the illiteracy rate but certainly not one to nullify the illiteracy rate. In this write we propose a new approach for rural education using intelligent classroom built on ICT.

Next Generation Class Rooms

Students will remain in their respective home or gather in a common place (a class room) where the system will be deployed. The system will be a teacher less class room system which will use inbuilt or stored teaching materials for teaching the students. The teaching materials used will be of high standard and will ascertain the credibility of the quality of the education. Students will be using the collaborative systems for interacting with their teachers for clarifying their doubts. The class rooms or common places will be absorbed by maintenance staff members.

RFID Based Student Status Tracking and Automated Test Tutors

RFID tags issued to students will be used for attendance tracking and student tracking systems. Evaluation exams and tests will be conducted by automated tutors. Interactive voice response systems pre - configured by the corresponding staff member will proceed with oral sessions while the tests similar to GRE will use objective answers and digital scripts for recording the performance of the student's performance and the results will be recorded against the corresponding student. Tags will also help the tutors to keep track of the student syllabus status i.e. to know to what extent a student has progressed in his course.

What we have done?

We have closely interacted with Dr.Sophia of M.S.Swaminathan Research Foundation, Chennai - India and have learnt about the impact that the computers can cause in the rural environment. We also interacted with Mr.Sethuraman, Head Master, Tamilnadu Education board, INDIA and have studied the various causes for poor quality of education in rural belt and have listed out the causes for failure in various Government schemes. We have also worked to know why students are dropping out from schools.

What we are doing?

The system we are building is meant to greatly aid rural education through ISRO - MSSRF Villages Resource Center. Department of Science and Technologies Satellite links will be used to inter connect the VRC and the knowledge Hubs and will remain as a backbone for data transfer between various centers. To start with currently we are building a system based on the syllabi of standard 6 of Tamilnadu state board. Students drop out rate after standard 5 is very high compared to other classes, by building this system with standard 6 syllabi we intend to build a bridge for the drop outs to get back to school. We are digitalizing the concepts that are covered in the syllabi of class 6 using animated presentations in Flash and are building speech processing systems using HMM for automated tutor based applications.

References

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