Proposed Advanced Education System

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ABSTRACT
One of the most crucial problems affecting the world today is the scarcity of quality education. In the present era primary education is a basic need but in developing and under developed countries illiteracy is spreading like a plague. The scarcity of education is expected to worsen in the future due to lack of interest, even in countries with significant human resources. The government is providing end numbers of facilities for improving the literacy rate of their country. The paper here proposes a technology which is sufficient to change the slogan from "Each one Teach one" to "Each one Teach everyone". This paper focuses on providing quality education to each one of us without the help of teacher in the classroom. It also helps in internal assessment of every individual using advanced and flexible storage data base along with their attendance record and behaviour in classroom.

This proposed technology is used for the betterment of future of the country.

General Terms
 Face Recognition, Database Synchronization

Keywords
Quality education, advanced embedded system, flexible storage data base, attendance record.

1.INTRODUCTION
In the world, after China, India withholds more than a billion residents and has the second largest education system. According to expert's estimation, 32 percent of current population is under the age of 15 [1]. And for the few proportion that do persist only through secondary schooling; the quality varies widely, depending on region of the country. Education system of India will not progress or evolve into a dynamic field unless the inherent problems are identified. Most of the problems are reported from the rural areas. The main problems are categorised into four broad areas i.e. inadequate funding, less qualified educator, insensitive school personnel, lack of infrastructure and above all corruption.
 Illiteracy is a serious threat to India's growth; currently the literacy rate is only 74%, significantly below the world average of 84% [2].How can India expect to grow if it has the largest population of illiterate people? This proposed project will help the Indian government to drive the nation towards the signing future and emerge as a super power among the developing nation by increasing the human resource with most powerful weapon of the era i.e. 'Quality Education'. The problems indicated here is not only in India but also in many similar developing and under developed countries.
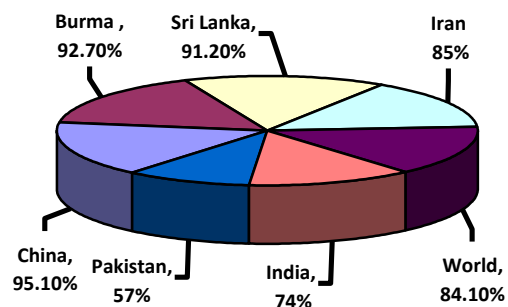

Fig 1: Literature Rate of developing countries [2]

From table 1, there are 6, 51,064 recognised primary schools in our country. Out of total primary schools 5, 72,814 primary schools (87.98%) are in the rural area, whereas 78,250 primary schools (12.02%) are located in urban area [3]. Our main focus is on developing the education system with the use of advance embedded system which requires only one time investment and low maintenance cost.

2.PROPOSED HIERARCHY
The hierarchy is based on Indian rural administration system, which focuses on improving the level of education compared to that of today. The division will help in proper and honest functioning of proposed model along with countries future building. Due to the surveillance every one bound to perform their job either lower level (student) or upper level (centralised staff) and well manage the education system. The system is divided into various hierarchical levels which are efficiently interconnected,

School → Village → District → State →Centralised

The schools which lie at the most low level in the plan are clustered together to form a village system. Here, it is assumed that there is a single school in a village.

Table 1 Indian Education System

	INDIA			
Sl. no.	Category of School	Rural	Urban	Total no.
1	Primary	5, 72,814	78,250	6, 51,064
2	Upper Primary	1, 93,947	51,375	2, 45,322
3	Secondary	63,576	27,165	90,741
4	Higher Secondary	22,847	21,022	43,869
	Total	853,184	177,812	1,030,996

Several databases at villages which lie in a particular district are connected through intranet to the district's server which in turn sends and receives information from the state level. All Indian states are then connected into 3 master sever at three different location which is connected to central.

The proposed hierarchy is in efficient in eliminating corruption in the field of education. The system is constructed keeping in mind that every level of the hierarchy is under surveillance from some other level. This keeps personnel responsible honest to their jobs.
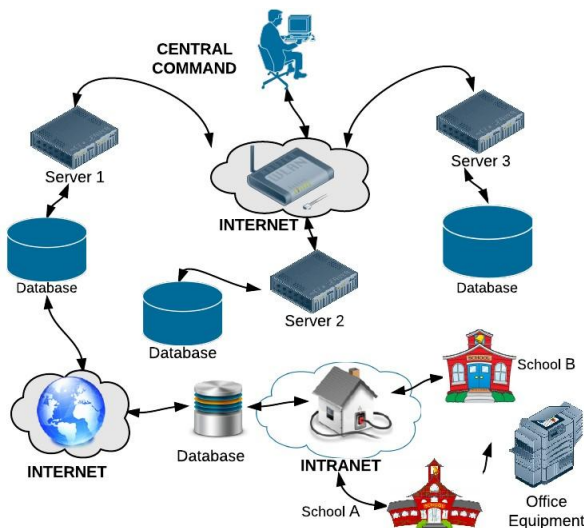

Fig 2: Proposed hierarchy

3.METHODOLOGY

Government is spending lot of currency on rural education by providing different schemes to the students. It is really expensive to provide income toeach and every teacher i.e. for different subject's different instructor.

But if this system is approved then expenses for installation will be the first and last investment with very low maintenance cost. This is an intelligent system which is developed for increasing the quality education across the world irrespective of dependence of region using five effective intelligent systems which can be initiated using some voice 'code' which may be in regional languages too, whereas some modules initiate automatically. The modules are:

• Automatic Resuming School Timer (ARST)

• Voice Recognised Attendance System (VRAS)

• Behaviour Analysis System (BAS)

• Intelligent Instructor

• Digital Library
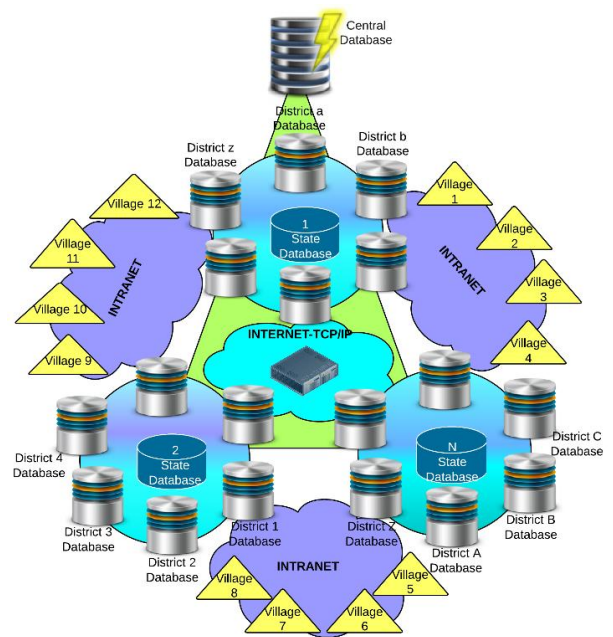
Fig 3: Database Synchronization

4. SYSTEM MODELLING

The system is fully automated and includes

## 4.1 Automatic Resuming School Timer

The System automatically resumes with respect to the time stored in the database using timer, the system automatically generate announcement signal at sharp school starting time. A small model of digital programmable timer can be designed easily with software aid.
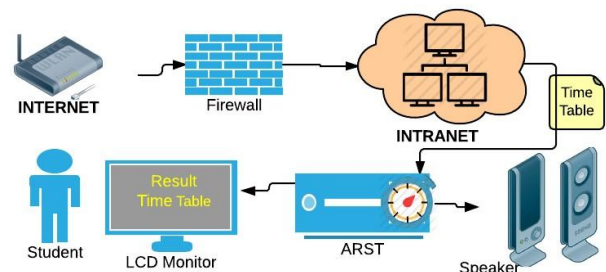
Fig 4: ARST

A continuous down running counter overflowing after every twenty four hours is sufficient for the purpose. The down counter whendecrement to the timewhen the school starts it generates an interrupt which can be used to ring a calling bell and to start the education system module. Similarly, the timer

overflows when the school duration is over and the interrupt generated can be used to shut down the system. This timer module can also be used to monitor the period changes. This timer is programmed to read time table as uploaded to the central database website and act accordingly.The MATLAB model is shown in figure 5.
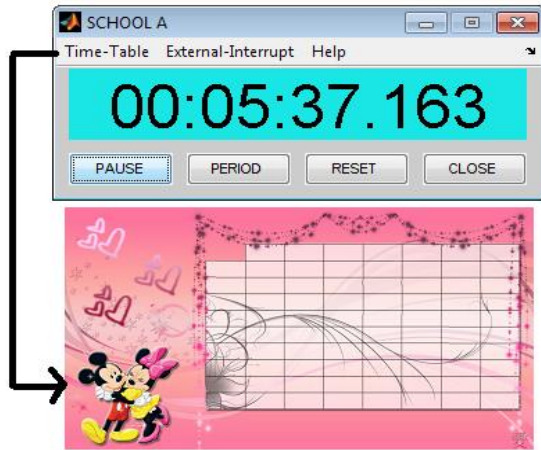

Fig 5: MATLAB simulation

For instance if there is little bit change in the time table, it will automatically reset the previous command and reprogram itself.It also contains external interrupt menu which comes into play when time table is to be changed instantly or in case of emergency.

4.1Voice Recognized Attendance System

VRAS system is solely dedicated to judge the regularity of a student. This module employs a voice recognition system which monitors the voice of students and increments their attendance automatically. The probability of matching of two different student's frequency is very less or negligible [4]. But certain ambiguities may occur due to microphone quality or background noise. If a student is present in classroom it compare it's frequency to frequency stored at database and reopen that student profile and mark the attendance along with its physical appearance using advanced vision technique and store the attendance in a particular folder. Database contains the folder of every individual associated with the school. This folder will store the result, effective intelligence, general and technical ability, self confidence level and even co-curricular activity record of every student on the basis of their performance in the class. All the information is connected to the central database. Hence, this module rules out the possibility of any corrupt practice from teacher's or the student's side.
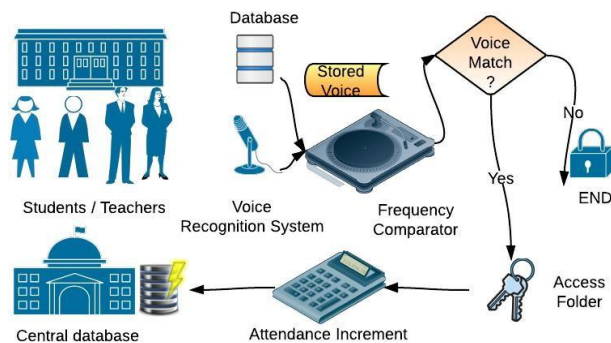

Fig 6: Voice Recognised Attendance System

4.2Behaviour Analysis System (BAS)

This module is dedicated to assess performance of students present in the class. The image processingmodule will continuously monitor the pupil of students. This can be used to judge if a student is sleeping in the class or is not paying attention i.e. not looking in the direction of the instructor. In this system, some visual behaviour is observed i.e. blink frequency, face pose, nodding and degree of eye opening. System calculates some parameters from the images in order to detect some easily observable behaviour in people. A high level of person's inattention reflects eyelid movements and making face pose [5]. A voice recognition system will also continuously monitor the voices of students disturbing the class and will mark the indisciplinarybehaviour in their folder. This module is fully automated. The initiation is automatic and does not require any voice command. The module keeps a check on the discipline of the class without the presence of an actual instructor.

4.3 Intelligent Instructor

The intelligent instructing system not only teaches a pre decided topic to students but also responds to their queries. The voice recording system records the question and then searches for keywords in the database. The possible solution of the query is then explained by the instructor. If in some situation the query is not solved, the control room will send a message to the concerned teacher who will reply with the solution of the query using voice mail/text instantly. This solution will be saved in the database for further considerations and also be explained to the students. This process includes the use of internet voice to text conversion which converts the student queries into text and search the data base with keywords and respond accordingly[6]. The conversion works on the text message send by teacher also, the processor converts the text into speech. The intelligent instructor module is the core module of the proposed advance education system. This module precedes the present teaching method of actual teacher in the classroom and even video conferencing method of teaching. As the IQ level of students of all the schools is not same and the queries are not easily answered in the video conference method of teaching the method was required to be altered by some new technology and the intelligent instructor proposed here fulfils our need.
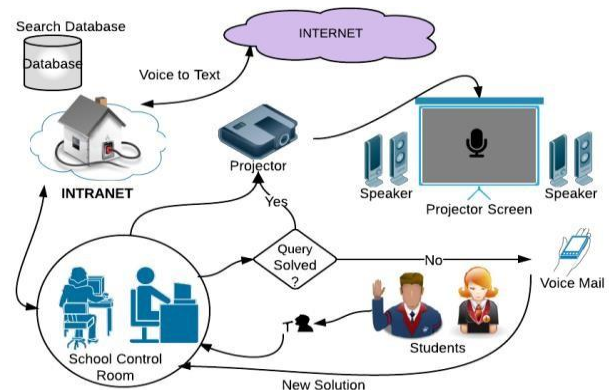
Figure 6 Intelligent Instructor flow chart

4.4Digital Library

The digital library system will consists of eBooks and journals on various topics required for primary/secondary education. The module will be capable of searching for keywords in the books and dictionary and provide the student

or teacher with required data accordingly. This is an intelligent system, when students are commanded to read the text book, module will automatically open that book on the screen and starts highlighting the line and will explain the difficult text with the help of models, slides and examples. If students are not satisfied with the answer it will take the help of intelligent instructor. The slides, examples and models are pre burned into the database by the concerned teacher.

5. CONCLUSION

The proposed paper here organises various technologies to create a single embedded system to ensure and facilitate primary and secondary education in developing and under developed countries. The five-module division makes it portable and robust. Module 1, Automatic Resuming School Timer (ARST) is an efficient timer for time duration judgement. Voice Recognised Attendance System (VRAS) is capable of modifying and storing student's attendance record. Behaviour Analysis System (BAS) assesses the student's behaviour in the class without the presence of an actual teacher. Intelligent Instructor is a fully automated software voice which is capable of teaching and solving problems. Digital Library like an actual library consists of a vast collection of books, journals and periodicals which can be accessed by students on voice command. Therefore, the advanced education system fully automated the general working of a school. This education system is certainly more efficient than conventional teaching system. The system design is proposed to completely eradicate illiteracy and corruption in the field of education.

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