A Study on Effective Approach of Science Teaching by IOT Smart Classroom

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Abstract: *The Manual and theoretical method of science teaching has no effect in the implementation of the science methods due to the lack of practical knowledge. At same time the student are not get the exact concept in those type of teaching. This can be resolved by using an IOT (Internet of Things) technology what not is in present days without the use of internet so the practical teaching can be more energetic with more enthusiasm. As the saying say "Practice makes Man perfect" making practical teaching with IOT by using smart boards and smart class room environment is possible. During only practical teaching without IOT it consume more time and couldn't deliver more concepts to the student within provided time. As India is moving towards digitalization, we need to change and act according at same time, without disturbing the previous system. Now-a-days students are more interested in learning things in an innovative method, as we all know visualization of things have more impact on students compared to oral.*

Key Words: *Internet of Things, Teaching, Innovation methods**, Technology.*

1. INTRODUCTION:

In the past years ago the education system was completely different when compare to now-a-days. Many teaching methodology has been came into existence over many researchers, but those methodologies the student need to be convenient and should be more flexible. The teaching of science is in such a way that the student has the environment of having a theoretical and practical knowledge over a subject where as now-a-days the student are being force to be educated within a boundary the only way to make student friendly to the education system is moving accordingly with student thoughts and ideas. The main idea is to make student more educated so that he/she can make the society educate. As the technology has been growing vastly we the people has to make use of that technology in right way. Linking the education with the technology to teach the student will bring the bright future. Everything is been modernized in the world by this the technology of smart things can be implemented in teaching science. Here IOT Internet of Things using this, the general and manual things are made into smart things. As present children are been very familiar with the Television and visually projected things. They can easily grasp and store the visual things in mind.

2. LITERATURE REVIEW:

The smart classroom concept has appeared in the literature as Internet based distance education system; or as intelligent environment equipped with an assembly of many different types of hardware and software modules. In the process of everyday teaching, lecturers are usually trying to find out if the students (or more general the auditorium) were satisfied with the lecture, which part of a lecture was interesting, which presentation techniques and approaches were more attractive and effective than the others. Previous studies have shown that approximately after 10 minutes students' attention begins to decrease. At the end of a lecture, students remember 70% of the information presented in the first ten and only 20% of the last ten minutes. Combining the IOT technology with social and behavioural analysis, an ordinary classroom can be transformed into a smart classroom that actively listens and analyzes voices, conversations, movements, behaviour, etc., in order to reach a conclusion about the lecturers' presentation and listeners' satisfaction. This will enable lecturers to consistently deliver good presentations and make better impact, while the audience will benefit from interesting lectures thus making the learning process shorter, more efficient as well as more pleasant and even entertaining. The research conducted at MIT (Massachusetts Institute of Technology) shows that it is possible to merge computer and social science in order to analyze human behaviour. All work is based on a theory that states that humans have two types of "minds": habitual, which is fast, parallel and automatic; and attentive which is slow, serial and rule based. New psychological researches estimate that much of human behaviour is habitual and that mindful decisions play little or no role. Therefore, people are much patterned in how they behave and in some degree repeatable and predictable. The patterned human behaviour can be used for further research: digital

representation of parameter patterns (pattern frequency, sound level, etc.) may certain features that can be utilized for analysis of the lecture quality. In an ideal case, a smart classroom should not differ from a standard classroom environment; respectively the students are not observed in an intrusive manner, and hence they behave naturally. The perspective of the existing work is oriented forward digitalization of the ambient, conversion of written materials into electronic form, tele-education, human to computer interaction, web based distance learning, interaction in a classroom or a conference, etc. To our knowledge, this is the first attempt to specify the problem of live feedback on lecture quality and analyze the requirements. In automated capture of audio, video, slides, and handwritten annotation during a live lecture is proposed. A system for locating and tracking lecturer in the room using acoustic and visual cues.

3. STATEMENT OF THE PROBLEM :

The study finds out the Indian education system is facing so many problems to teach difficult science subject and to reach effectively to the students by using the old method of lecture teaching in science education. The Indian education system whole and sole is managed by the ministry of Human Resource Department it is divided into regional centres and finally is running as state educational organisation body as SCERT, here in this system state level and central level of educational system are totally in balanced, and by this problem the best knowledge of students for science teaching the private schools are using their powers and partial implementation of national wide syllabus which is related to IOT based educations, here same as government schools are still not providing minimum requirement of power supply, internet facilities with computers laboratory, LCD projectors, method of teaching by the reason of following rules frame by state curriculum facilities and still the old system of trained teachers with lack of knowledge of educators are continue in the government educations institutions in the science teaching.

4. METHODOLOGY:

The process of implementing a new teaching system in science is by involving the smart classroom environment.
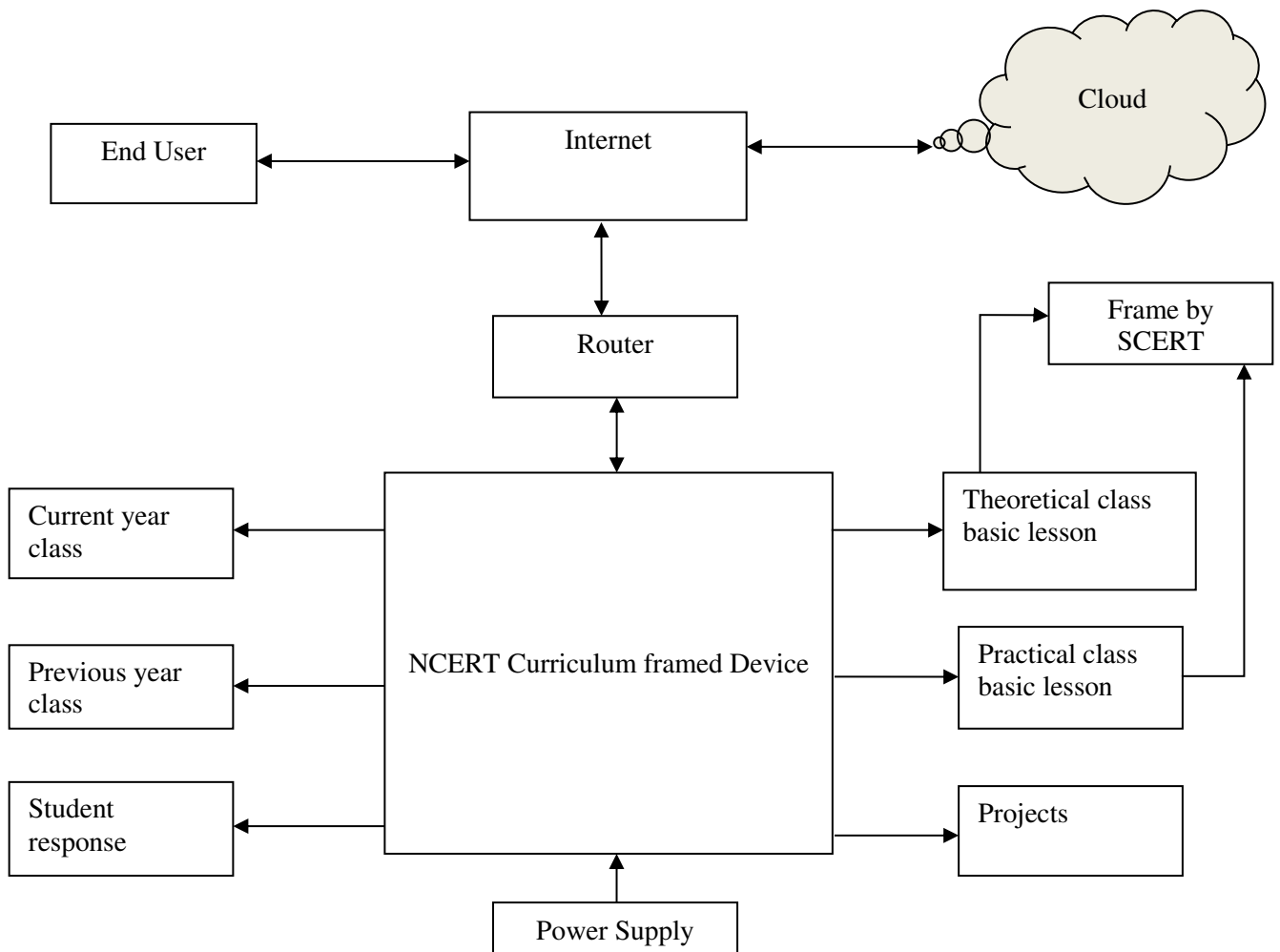

Figure 1 : Smart Classroom Design

The above figure illustrates the implementation of smart classroom with the NCERT curriculum framed device which contain the rules and regulations of the NCERT with that connected to the current year and previous year classes alone with the students response so that the students get the knowledge what had happened in the previous year and with the response of the student comparing with the current year classes with the theoretical and practical sessions are also mentioned as per the SCERT and also the implementation of those sessions with projects are also done the whole setup of this connected to the internet through router and is stored in cloud so that it can be accessed in the future also. Similarly, through the internet end, the user is also able to access it.

In this the smart word is referred to the general things which work with the help of internet and embedded technology. The teaching method involves the smart board and smart classroom.The smart board is completely differ from the manual board in this the manual is affixed with some electronic gadgets which works similar as a projector but in the projector we can't write manually on the board the predefined subject is only displayed on it where as in the smart board predefined can be displayed and teacher new ideas can also be explained manually.

By using this smart board science can be implemented practically is through internet the previous done projects of a subject can be visually shown to the students and at the same time the information whatever written on smart board is been captured and is used for future use of both the student and teacher. The teacher will have more time in the classroom by using this method so that the time can be utilized in explaining the student with more live examples. By teaching simply what is present in the text book will not lead to the practical implementation of method in science for that purpose the teacher has to tell the student what the present things going on the world this can be done by this study. As everything are digitalized the smart board and smart attendance makes the teacher more convenient in teaching the more concepts more clearly.

A. Hypothesis
This study satisfies in fulfilling the hypothesis with the help of IOT i.e smart class room environment.
1. Manual teaching doesn't provide the practical knowledge
2. Time consumed for the teacher to deliver the total concept is more.
3. Lack of knowledge what the outside present world is going on.
4. Private sector educational institution are getting results by using IOT based learning
5. Qualified updated Teaching faculty identification by this IOT based education

B. Sample Design
The study has taken from the 100 students of different types of education organization how to innovate this idea into implementation. The sample of study chosen from the Telangana state location of metro cites running schools under the management of 10 corporate schools, 10 private schools, 10 government and 10 aided schools. The urban cites running schools under the management of 10 corporate schools, 10 private schools, 10 government and 10 aided schools. The rural area of cites running schools under the management of 10 private schools, 10 government and agency tribal area running schools under the management of 10 private schools, 10 government taken the data of all students and schools infrastructure data analysis.

5. FINDING FROM THE STUDY FACILITIES OF IOT IN TELANGANA STATE

Table: Finding of Telangana State Educational Institution with IOT facilities

Name of the institution	Syllabus frame by science CBSC/State/Others	Partial implementation of IOT smart science class room	Full implementation of IOT smart science class room
Kendriya Vishwa Vidyalayam	CBSC syllabus	Yes	Yes
Navodhya Vidyalayam	State syllabus	Yes	Yes
Private International Schools	Others syllabus	Yes	Yes
Telangana Gurukulams Schools	State syllabus	Yes	No
Zilla parishath Schools	State syllabus	No	No
Govt. Schools	State syllabus	No	No
Aided Schools	Sate syllabus	Yes	No
Private Schools	CBSC/state syllabus	Yes	No

6. CONCLUSION:

This study gives rise to the new innovative and technological method of teaching science in education system. The smart board and smart attendance system makes smart classroom environment using the Internet of Things results in innovative method of teaching science. As India is still developing country the developed countries are been using this system of teaching in the curriculum. Today's students are tomorrow's citizens so the teacher and their teaching methods affect a lot on the future citizens. I conclude in such way that this method of teaching makes our student have a better bright future as it has been shown an excellent results in other countries.

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Author Biography:

I am Abhinava Vinay Kumar with MBA, MA, M.Ed qualifications working on research area in education stream. My research field is to utilize latest technology in education with also physical activities. Basic idea of research is to have a best method for teaching which makes people more interested in learning the new things by also implementing such learned things. The work promote physical education in student life.