International Journal of Advanced Research in Biology, Ecology, Science and Technology (IJARBEST)
Vol. 1, Issue 1, April 2015

Classroom Observation System

M.Arumugaraja [1] K.P.Aravinda Kumar [2], V.Karthick [3]

Assistant Professor, Department of ECE, SNS College of Engineering, Coimbatore, India [1]
Under graduate scholar, Department of ECE, SNS College of Engineering, Coimbatore, India [2]
Under graduate scholar, Department of ECE, SNS College of Engineering, Coimbatore, India [3]

***Abstract*—The student polling technology is designed to maximize student participation which generally create positive impact of student observation system on teaching and learning. This project provides information about the development of classroom observation system. This gives the details on including setting up the necessary files, writing question, grading question and posting scores. Block diagram of the system, transmitter and receiver section is also described. Henceforth, it is also called as classroom communication system. This system provides more flexible and cheaper response services on the existing system on site technology. Finally, the result obtained is also display in the computer monitor.**

***Index Terms*— Wireless transmitter, TSOP, PIC16F877A, MAX232.**

I. INTRODUCTION

Research and practice in the use of electronic voting systems has developed over the last many years. Electronic voting systems, also known as personal response systems audience response systems or student response system or classroom observation systems (COS) use handsets to elicit responses from students as part of structured teaching sessions, typically lectures. A classroom observation system is associated with the introduction of interactive, discursive and more segmented approaches to teaching. This project is more useful in large lecture sections. Block diagram of COS transmitter and receiver section is also given. In addition the flowchart of COS system is also included which describes the complete operation of COS system.

Classroom observation systems (COS) can be used in classrooms in order for the instructor to obtain real-time feedback on student comprehension of presented concepts. A typical COS comprises hand-held transmitters for students to submit answers, receivers that collect the answers, and software that creates the question slides and displays the statistics of the student answers in real time. In a traditional lecture where the instructor does most of the talking, students are passive, especially in a large lecture hall where students have few opportunities or incentives to ask or answer questions.

Even when the instructor asks for responses from students, typically the same small number of students would choose to participate. The large lecture syndrome is well known: the professor solemnly expounds his materials, the class passively absorbs it. The professor obtains no feedback and the students scribble notes mechanically.

The major problem to be overcome is the lack of two-way communication between the teacher and the students. A proposed solution to the lack of interactivity in a large lecture is the use of classroom observation systems. COS can be used to provide an "anonymous" way for students to answer questions posed by the instructor, circumventing the discomfort that some students feel about speaking in front of a large class. In this study, an engineering lecture-based course, with low satisfaction from the students' perspective was modified to incorporate COS. Each student is assigned a TV remote control unit which use infrared frequency technology to transmit and record the student responses.

II. LITERATURE SURVEY

Since about 1998, the simplest remote Classroom Communication Systems were adopted in academic environments. Even though this technology has had quite a success, it has taken longer for the sciences/engineering to implement it. The RF and WI-FI transmitter are already used and their disadvantages are discussed below.

2.1. Radio frequency

In radio frequency (RF) systems, the receiver does not have to be placed in line-of-sight of students, allowing for increased portability in hardware solutions. Signal reception is more reliable and has a longer. RF systems also allow for two-way communication, so clickers can confirm when student's response has been received. Low visibility might make it easier for students to cheat the system by bringing in each other's transmitters when responses are used for attendance or participation grade. RF clickers are more expensive than IR.There is a higher likelihood of interference issues as RF clickers can operate on the same frequencies as Wi-Fi and other RF devices. Clicker administration and management can be expensive.

2.2. WI -FI

Wi-Fi systems use a web-based interface for student interaction. These systems allow for text entry and open-ended responses. Students can use a wide variety of Wi-Fi devices. Using the existing campus wireless infrastructure. Requires students to have a Wi-Fi computing device. Fewer choices currently available in the marketplace. In our project, we use IR transmitter device for

International Journal of Advanced Research in Biology, Ecology, Science and Technology (IJARBEST)
Vol. 1, Issue 1, April 2015

communication, to overcome the disadvantages of using radio frequency and Wi-Fi communication systems. The main idea of our project is to reduce the cost which helps mostly in mass production.

III. METHODOLOGY

In the hardware section, the remote control is used as a transmitter. The block diagram gives a representation of transmitter and receiver section. As told previously the TV remote control unit acts as the transmitter. The receiver side is fully connected through wires.

Whenever the switch is pressed the interrupt pin of microcontroller goes low and the address of that switch along with that transmitter address is sent to the receiver microcontroller through transmitter and IR receiver (TSOP modules).

When in operation, by using the stop and reset button, the time duration for the students to response the question is given. In our future enhancement of the project, the screen for the COS displays the number of the question being asked, the time allotted to the question, and the number of chances each student has to answer the question. Once a question is asked, the clock is started and the time remaining in which to answer is continually shown. Fig1 illustrates the flow diagram of COS system.

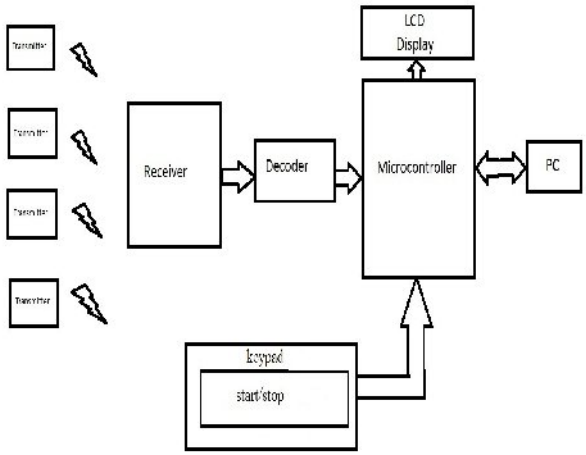
Only four digits in the TV remote unit is taken and each has different frequency. So that when a digit of particular frequency is pressed, the answer code is matched with that frequency.

As far as this project is concerned a less number of transmitter are only used. Hence there is no means of collision to take place in the receiver section. Hence, we state that COS offers a powerful and flexible tool for teaching. It can be used in a variety of subjects with students of almost any level of academic training. COS may occupy either a peripheral or central role during class. It can be incorporated into a standard lecture course to increase interaction between students and instructor or used as part of a more radical change in teaching style toward primarily active learning in class.

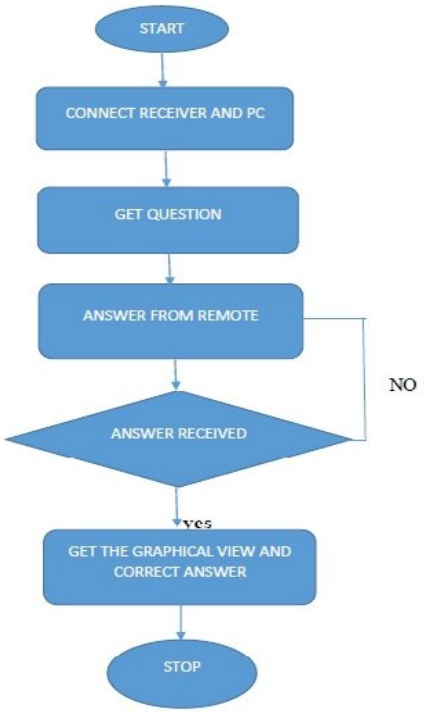
Overall, COS has the potential to improve classroom learning, especially in large classes. Students and instructors find their use stimulating, revealing, and motivating as an added benefit. It can be assured that this project can be the cheapest mode of classroom observation system to provide a healthy communication between the students and the lecturers.

For future work, some applications should be added to the system so it can also be used for other purposes.

BLOCK DIAGRAM:

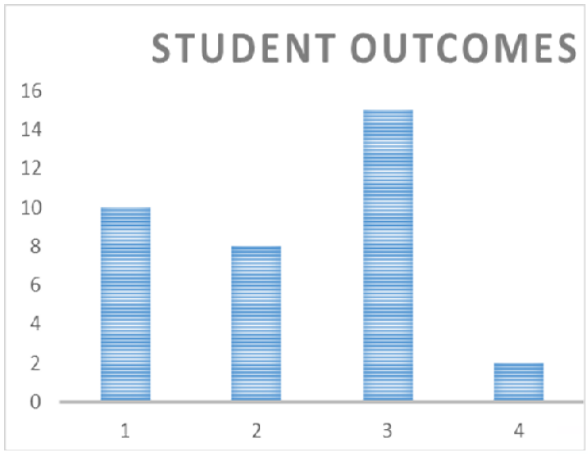


FLOWCHART



International Journal of Advanced Research in Biology, Ecology, Science and Technology (IJARBEST)
Vol. 1, Issue 1, April 2015

RESULT ANALYSIS:



IV. CONCLUSION

Infrared systems basically use the same line-of-sight technology that is used in household television remotes. They have the lowest overall equipment cost. There are no interference issues from classroom to classroom, as signals do not go beyond the walls of the room. Because the clickers must be aimed directly at the receivers in order to work (and thus have high visibility in the classroom), they also reduce the likelihood that students will bring in each other's transmitters when responses are used for attendance or participation grades.

By looking to previous techniques, they are a good technology but they are highly expensive. The main aim of our idea is to reduce the economic cost of the project.so, we prepared to use IR. And it is mainly helpful to lower level education

V. REFERENCES

[1]. David W. Petr, "Experience with a Multiple-Choice Audience Response System in an Engineering Classroom", University of Kansas, Electrical Engineering and Computer Science, 1520 W. 15th St, Suite 2001. Lawrence, KS 66045-7621.

[2]. C. Keller, N. Finkelstein, K. Perkins, S. Pollock, C. Turpen, and M. Dubson, "Research-based Practices For Effective Clicker Use", University of Colorado at Boulder Department of Physics, Campus Box 390 Boulder, CO 80309 clicker (Bedford, Freeman, and Worth Publishing) 33 Irving Place, 10th Floor New York, NY 10003.

[3]. Jane E. Caldwell, "Clickers in the Large Classroom: Current Research and Best-Practice Tips", Department of Biology, West Virginia University, Morgantown, WV 26506.

[4]. Jonathan Ben-Nun1, Niko Farhi1, Morgan Llewellyn2, Ben Riva1, Alon Rosen3, Amnon Ta-Shma1, Douglas Wikström4, "A New Implementation of a Dual (Paper and Cryptographic) Voting System", 1Tel Aviv University.

[5]. John Barnett, "Implementation of personal response units in very large lecture classes: Student perceptions", Australasian Journal of Educational Technology2006, 22(4), 474-494. AJET 22.

[6]. Greer L, Heaney PJ (2004), "Real-Time Analysis of Student Comprehension: An Assessment of Electronic Student Response Technology in an Introductory Earth Science Course", Journal of Geoscience Education, Vol. 52 No. 4, 345–351.

[7]. Guthrie R, Carlin A (2004), "Waking the Dead: Using interactive technology to engage passive listeners in the classroom", Proceedings of the Tenth Americas Conference on Information Systems, New York NY, 1–8.

[8]. Hall RH, Collier HL, Thomas ML, Hilgers MG (2005) "A Student Response System for Increasing Engagement, Motivation, and Learning in High Enrollment Lectures." Proceedings of the Americas Conference on Information Systems 621–626.

[9]. Hake R (1998), "Interactive-engagement versus traditional methods: A six-thousand-student survey of mechanics test data for introductory physics courses", American Journal of Physics, Vol. 66 No. 1, 64–74.

[10]. Abrahamson, A. L. (1999, May). "Teaching with Classroom Communication System -- What it involves and why it works," Paper presented at International Workshop, New Trends in Physics Teaching, Puebla, Mexico. Retrieved January 15, 2007.

[11]. I. D., Gerace, W. J., Leonard, W. J., & Dufresne, R. J. (2006). Designing effective questions for classroom response system teaching. American Journal of Physics, 74(1), 31–39.

[12]. Beekes, W. (2006). The "Millionaire" method for encouraging participation. Active Learning in Higher Education: The Journal of the Institute for Learning and Teaching, 7(1), 25–36.

Mr. M. ARUMUGARAJA was born on 17th of May 1986. He finished his Bachelor of engineering in the stream of ECE at R. V. S College of engineering and technology, Tamil Nadu, India, in the year 2008. He also completed his Master of engineering in the field of Applied Electronics at Kumaraguru College of technology, Coimbatore, India in 2013. He is currently pursuing as a assistant professor in department of ECE at SNS College of Engineering. His Area of Specialization is Embedded system and published several papers in the same field. His continuous passion towards his research skills with innovative thinking and his efficient teaching skills lead to the achievement of young educator award in the year of 2015.

Mr. K. P. ARAVINDA KUMAR born on 28th of May 1994. He is currently pursuing his Bachelor of engineering in the field of Electronics and communication at SNS college of Engineering, Coimbatore, India. His area of expertisation is embedded system and communication. He has published a paper in International conference on Advanced engineering and technology for sustainable development (ICAETSD 2015).

Mr. V. KARTHICK, born on 30th of May 1994. He is currently pursuing his Bachelor of engineering in the field of Electronics and communication at SNS college of Engineering, Coimbatore, India. He is specialized in networking and embedded systems. He has published a paper in International conference on Advanced engineering and technology for sustainable development (ICAETSD 2015).