

NEX-GEN CLASSROOM

R Sankaranarayanan¹, R Banuprakash², S Chandra Mohan²

¹Assistant Professor, Department of IT, SRM Valliammai Engineering College, Tamil Nadu, India.

²Student, Department of IT, SRM Valliammai Engineering College, Tamil Nadu, India.

ABSTRACT

In this digital world the classical teaching methods with blackboard and chalk are outdated and time consuming; to overcome this we introduce a new method of teaching learning process with modern technologies. It becomes easier for the teachers as well as students to perform their tasks more efficiently. These tools used to the teacher to teach the class in organized manner. It will help the teachers to concentrate on their students instead of infirmity the time on the black board. This projects contains four modules, they are Administrating, Teaching, Learning and Report. Administrating module has over all control and monitor. Teaching module contains facilities like interactive session planner, class work scheduler, homework scheduler, assignment scheduler, test scheduler, study material distributor and evaluation. Learning module interacts with teaching module to gain access to study materials, can complete their homework, class work, assignments and assessment. Report module help parents to keep track of their wards academic records regularly. According to the analysis on existing systems these all can be enabled only by the use of internet, so student may get loop holes and the system can easily be the victim of any vulnerabilities. This project overcomes those shortcomings by enabling the facilities without internet (only LAN or WIFI without internet) and it can be implemented with the current existing facilities in every institutions.

Keyword: Smart classroom, Quiz inline, Login based Attendance.

1. INTRODUCTION

The project Smart classroom is the representative of the modern teaching. With the advent of modern technology, it becomes easier for the students as well as teachers to perform their task more efficiently. This project aims to make use of the modern technology for helping the teachers in utilizing more time for teaching and students to easily get access to the study material. This project works with users such as admin, faculty, student and parent. Admin adds faculty, parent and student details and even faculty timetable. Faculty will be uploading the presentation reports and quiz questions before the week, the presentation data and quiz question will be held as per the timetable has been scheduled. The quiz will be conducted at the end of every session. The marks obtained by students in quiz will be stored by database. These marks define the internal marks. The instructor can upload the course plan and study materials for their subjects which can be accessed by their trainees. Also the assignments are allotted through this portal to the students, the students submit their assignments from their end. Parents of all the students keeps track on their wards through the report module.

2. ARCHITECTURAL DESIGN

The Architectural system of the project consist of four modules, in which Admin module can manage over all participants in the system and can allot classes for the faculty and the students. For Teaching purpose the teaching module prepares notes, assignments and conducts tests. Student module can login to the system for the attendance and to attend the Tests. Finally the Parent module monitors the student module according to their login. Figure-1 shows the architecture diagram of the system.

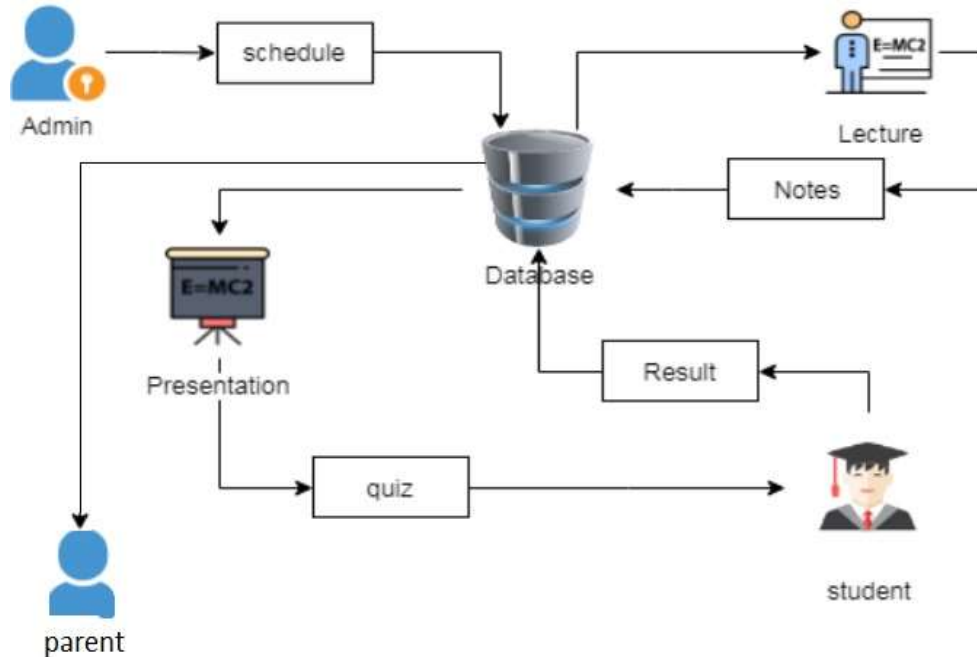


Fig-1:Architecture Diagram

3. INTERACTIVE LEARNING ENVIRONMENT

Synchronization is an important factor for an interactive learning environment. Interactive learning is a trend in present day learning system. Interactive learning focuses on achieving a common goal, encouraging the participation of all students. This system provides direct interaction between the lecturer, the student, parent and the system. Direct interaction increases the communication in teaching learning process. Also Parent can directly interact with the faculty members for query's and details about their wards.

4. METHODS USED

4.1 SECURITY METHOD

MD5 : User Authentication

The MD5 message-digest algorithm is a widely used hash function producing a 128-bit hash value. Here this method is used for securing the credentials and the personal details. Here the passwords are securely hashed with this method to avoid unnecessary activities.

4.2 ATTENDANCE METHOD

Login Based : Ip range based Authentication

One way to secure a web-based application is to restrict access based on the IP address. You can block access to a specific address or range of addresses that you suspect belong to malicious individuals. The instance allows you to control access by IP address also allows to give access to specific group of people to access the network. Through this the logged in devices are analyzed with the previously registered user details to find the user id, then the concern user get attendance for the hour which he/she logged on.

4.3 DATABASE

Php MyAdmin : Structured database to store the data.

User credential Management and the file management is carried out with the php MyAdmin database.

5. DATA FLOW DIAGRAM

The dataflow diagram for the system is shown the figure 2.

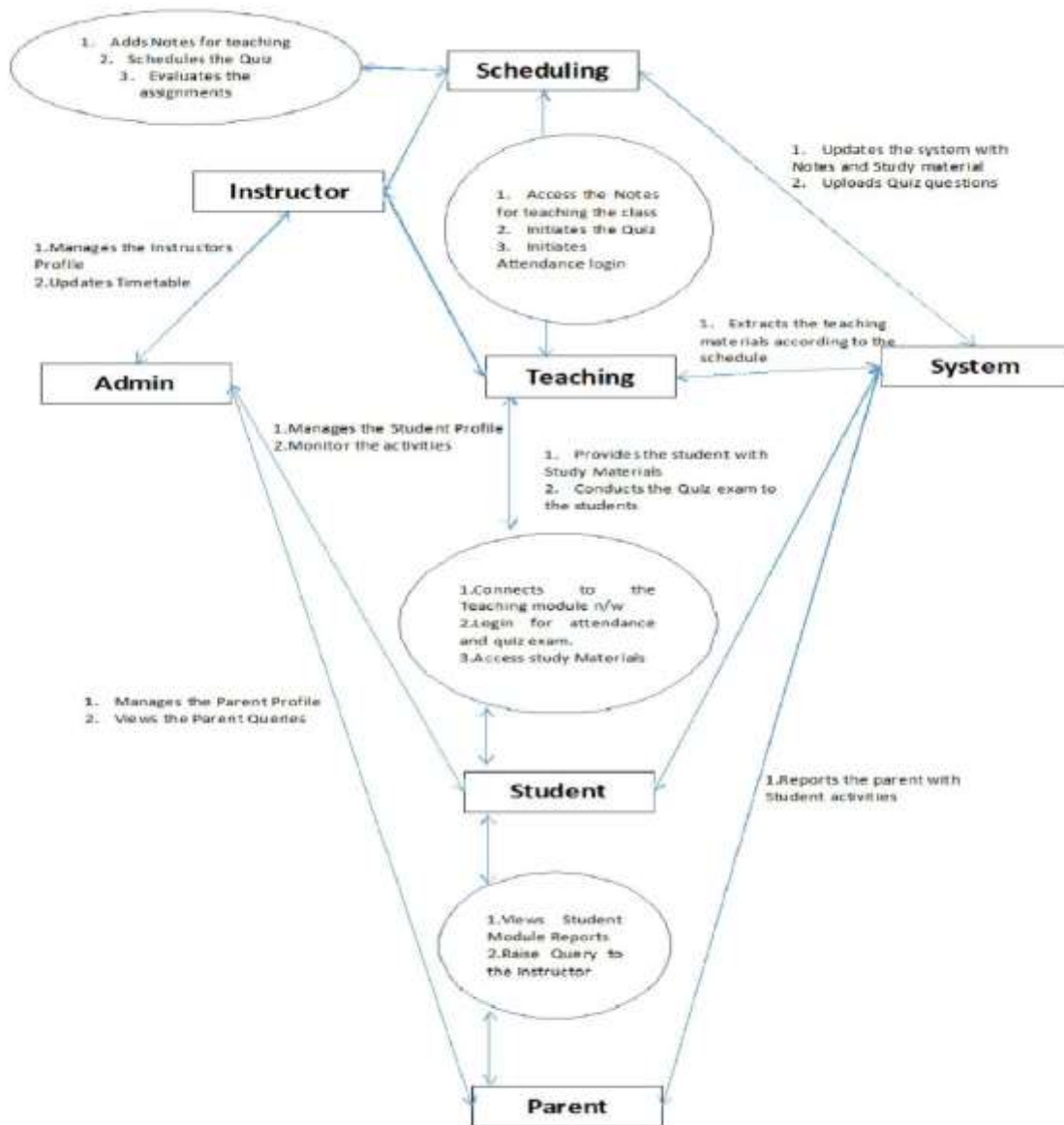


Fig 2: Data Flow Diagram of Next Gen Classroom

6. COMPONENTS USED

S.no	Component	Count	Specification
1	Server system	1	RAM : 8 GB HDD : 1TB Processor : i5
2	Network Switch	1	Port : 24-Port
3	Wifi-Router	As no.of classes (1 nos/class)	Simultaneous 2.4GHz 300 Mbps connection, for 1200 Mbps of total available bandwidth
4	Projector	As no.of classes (1 nos/class)	Display Resolution Maximum-1080p

7. PERFORMANCE MEASURE

NEX-GEN CLASSROOM system had the performance measure of ratios and comparisons. Once the users logged on to the system the performance is measured per class rooms as shown in fig.3. This measure is individual for each and every class rooms according to the router performance. The server performance measure is measured and shown in fig.4

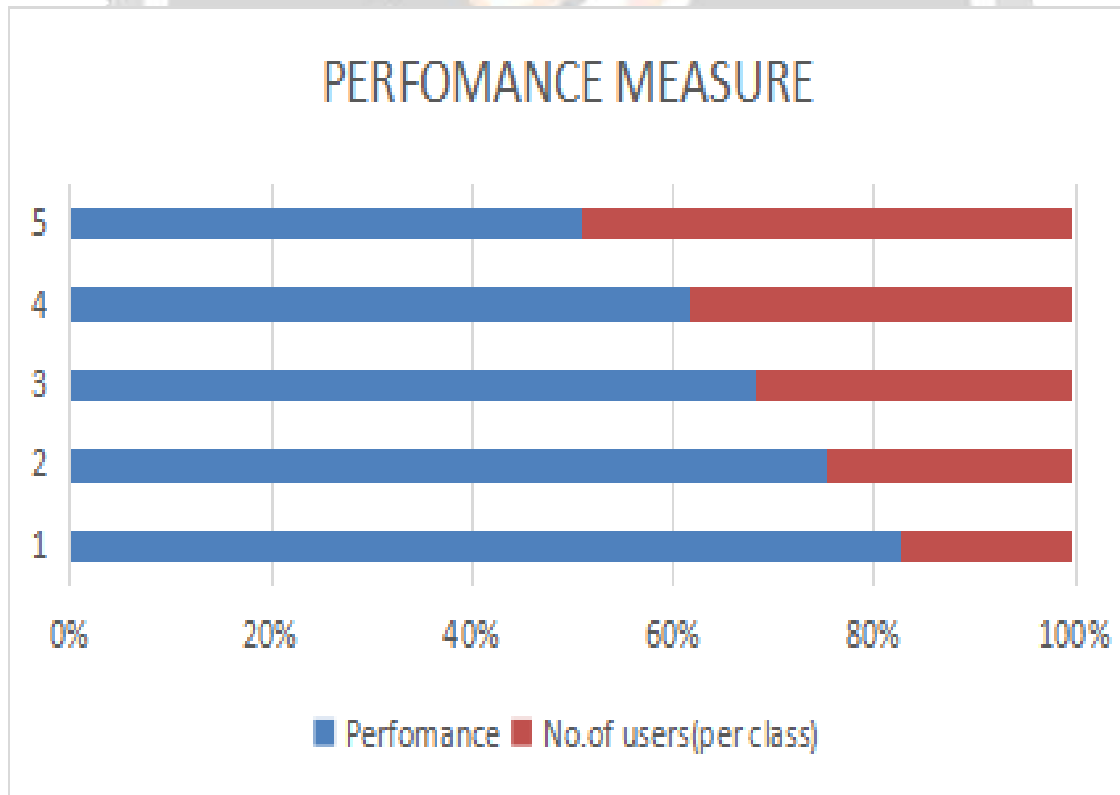


Fig-3:Performance Measure(per class)

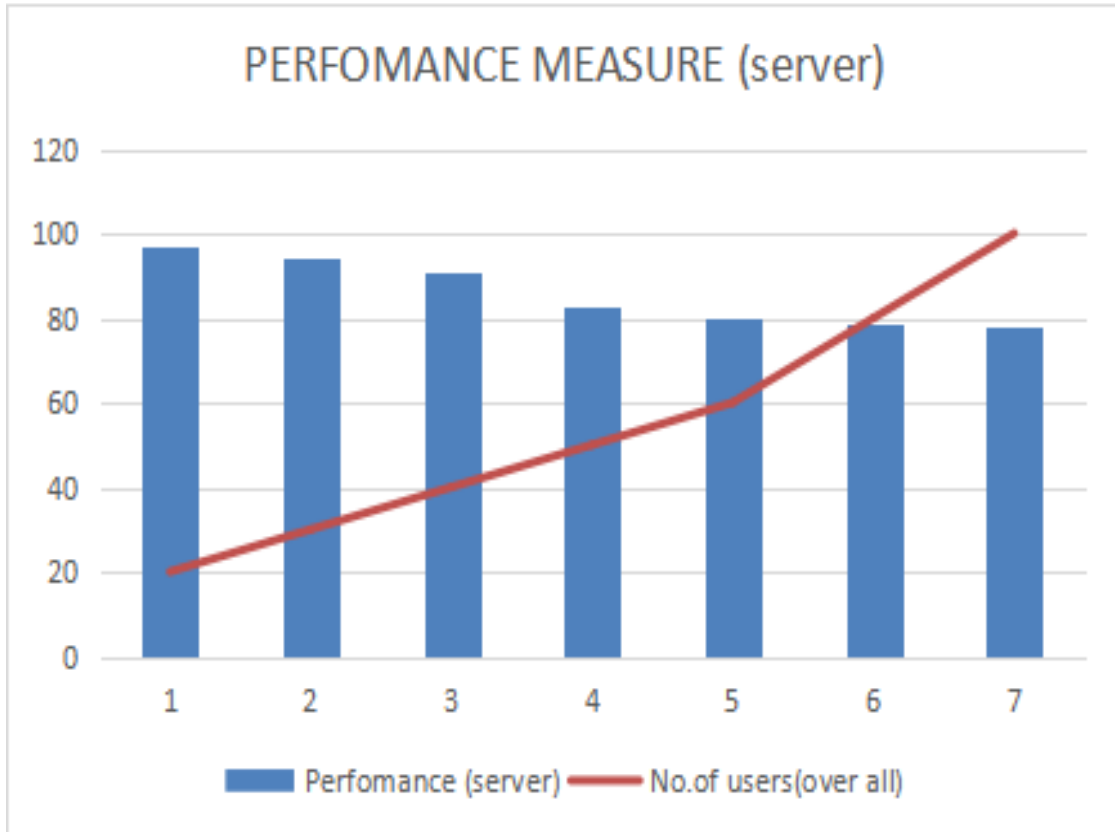
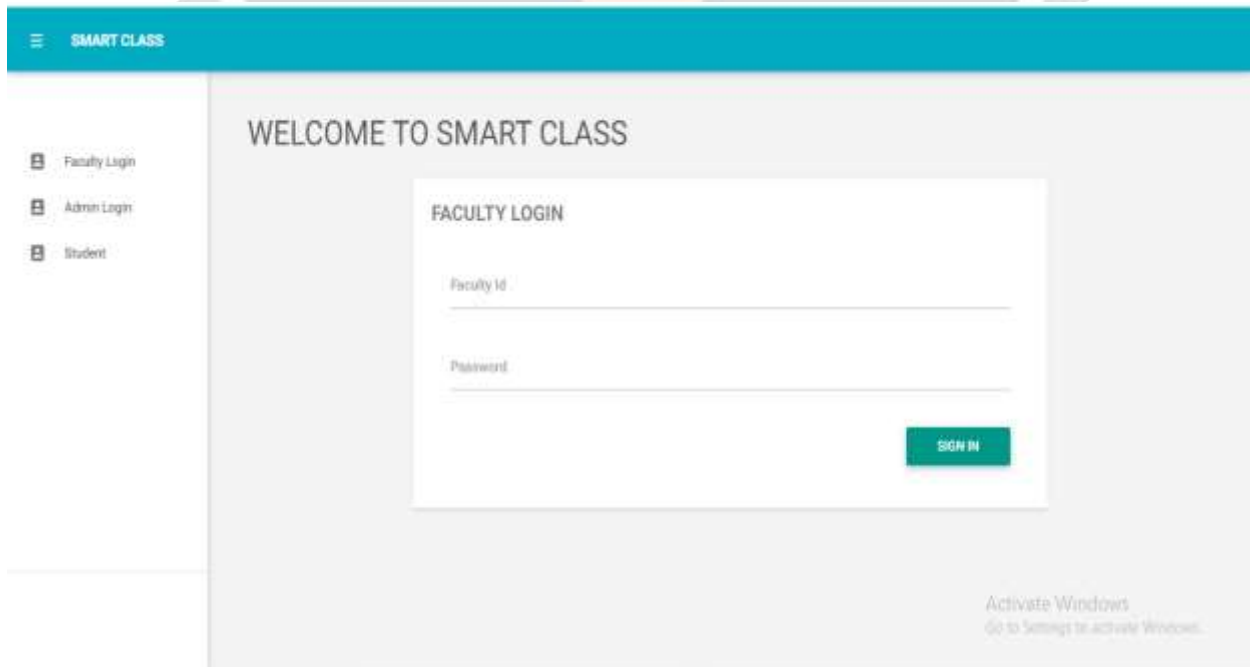


Fig-4:Performance Measure(server)

8. MODULE DESIGN



SMART CLASS | ADMIN

ADD FACULTY

Faculty ID

Faculty Name

Password

Department

Subject

Address

Mobile No.

Activate Windows
Go to Settings to activate Windows.

SMART CLASS | FACULTY

VIEW SCHEDULE





fac01

Day	Period 1	Period 2	Period 3	Period 4	Period 5	Period 6	Upload
	9:00 - 9:45	9:45 - 10:30	10:45 - 11:30	11:30 - 12:15	12:45 - 1:30	1:30 - 2:15	
tuesday	GE6351 MGKC	CS6301 FH	GE6351 MGKC	CS6302 BJ	MA6351 SP	MA6351 SP	
	NOTES	NOTES	NOTES	NOTES	NOTES	NOTES	Submit
	QUIZ	QUIZ	QUIZ	QUIZ	QUIZ	QUIZ	
wednesday	CS6304 SK	MA6351 SP	GE6351 MGKC	CS6301 FH	CS6303 KS	CS6312 RP	
	NOTES	NOTES	NOTES	NOTES	NOTES	NOTES	Submit
	QUIZ	QUIZ	QUIZ	QUIZ	QUIZ	QUIZ	





Activate Windows
Go to Settings to activate Windows.

Super Admin Dashboard

Updates - Last 24 hours

 0 Unread Messages	 0 New Users	 0 New Exams	 0 Exam Taken
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Totals

 1 Teachers	 1 Students	 1 Exams	 1 Categories
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Student Attendance

Class wise Attendance

Academic Year: 2019-2020
 Section: English
 Exam: Section-1
 Status: ++
 Check All
 Mar 2020

Student ID	Roll No.	Student Name	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	
100001001	1	Amit																						
100001002	2	Niladri																						
100001003	3	Ashmit																						
100001004	4	Muhammad Siddiq Khan																						
100001005	5	Muhammad Ashraf																						
100001006	6	Dev																						
100001007	7	Sanjay Singh																						
100001008	8	Sanjay Singh																						
100001009	9	Niladri																						
100001010	10	Muhammad Siddiq Khan																						
100001011	11	Dev																						
100001012	12	Dev																						

9. FURTHER DEVELOPMENT

These attendance system can be made by image processing with Face detection, and Device login can be done by fingerprint authentication. All processes can be made as College Use Only Tablets (only college applications can be used) so we can restrict their own mobile or laptop usage to reduce entertainment in classrooms.

10. CONCLUSION

As this system replaces the old methods of teaching. This system is can be bought as the general and standard mode of teaching learning process. Hereby the students can gain knowledge by involving them in to this system and the further developments of the same. Also the system can be made with the online conditions with certain rules and regulations for the distance education candidates.

11. REFERENCE

M. Babaei, H. R. Babaei, K. W. Ng and P. Parsi, "A quality framework for multimodal interaction in educational environments," 2015 IEEE 3rd International Conference on Smart Instrumentation, Measurement and Applications (ICSIMA), Kuala Lumpur, 2015.

- [1] M. Babaei, H. R. Babaei, K. W. Ng and P. Parsi, "A quality framework for multimodal interaction in educational environments," 2015 IEEE 3rd International Conference on Smart Instrumentation, Measurement and Applications (ICSIMA), Kuala Lumpur, 2015.
- [2] ChSaiSudeep Reddy, Abdul Zaheer, K Vijay Saket, Prakash V, Smart Classroom Using Raspberry PI, International Journal of Pure and Applied Mathematics Volume 120 No. 6 2018, 1871-1884.
- [3] El Mrabet, Hicham&Abdelaziz, aitmoussa. (2017), Smart Classroom Environment ViaIoT in Basic and Secondary Education. Transactions on Machine Learning and Artificial Intelligence.
- [4] Xie, Weikai& Shi, Yuanchun&Xu, Guangyou&Xie, Dong. (2001). Smart Classroom - An Intelligent Environment for Tele-education 2195. 662-668.