

AI And IOT Founded Clever Schoolroom

¹Name of 1st Mr Gaurav Khatri

¹Designation of 1st Associate Professor

¹Name of Department of 1st Faculty of Computer Science & Applications

¹Name of organization of 1st Gokul Global University, Sidhpur, Patan, Gujarat – India

Abstract

In today's rapidly evolving educational landscape, the integration of emerging technologies has revolutionized traditional classroom settings. The convergence of Artificial Intelligence (AI) and the Internet of Things (IoT) has given birth to the concept of the smart classroom, offering a dynamic and interactive learning environment. This paper explores the design, implementation, and benefits of an AI and IoT-based smart classroom.

Keywords: Automation, Virtual Assistant, AI, IOT, Raspberry Pi, Smart Classroom

Introduction

AI in Smart Classrooms: AI plays a pivotal role in personalizing education. It analyzes students' learning patterns, adapting the curriculum to their needs, providing immediate feedback, and enabling intelligent content recommendations. This facilitates a more efficient and tailored learning experience, promoting engagement and knowledge retention. **IoT in Smart Classrooms:** The Internet of Things connects various devices and sensors within the classroom, allowing them to communicate and share data. This interconnectivity enables real-time monitoring of the classroom environment, such as temperature, lighting, and occupancy. Additionally, IoT enhances security and simplifies administrative tasks, offering convenience for both educators and students.

Literature Survey

1. An Approach Towards Building an IOT Based Smart Classroom By Ani R, Krishna S, Akhil H, Arun Uext
The scope of this field is limitless and has emerged as a winner.

2. Learning the Classroom Automation Preferences with Low User Intervention by Feng-Cheng Chang, Hsiang-Cheh Huang, Liou Chu
The automation process is modeled as a state transition engine. In addition to describing the example applications of the framework, a simple use case is also simulated to demonstrate how to design a learning mechanism for this framework.

3. IOT Based Smart Classroom By Dr. B. Premalatha, J. Hari Krishnan
The smart classrooms are now heightened. The traditional teaching-learning approach using lecture and notes writing actually bring down the success in modern day education.

4. Design of Smart Classroom System based on IOT Technology and Smart Classroom

Smart classroom teaching is one of the new teaching methods. With the support of technology, teaching is carried out with the help of smart teaching tools to enhance teacher-student communication, enhance students' learning autonomy, and provide new ideas for the realization of students' deep learning. How to promote the overall intelligence of the teaching environment so that the teaching equipment can be used more efficiently and managed more effectively has become the main concern of schools. This article mainly studies the smart classroom system based on the Internet of things technology and smart classroom.

System Arch.

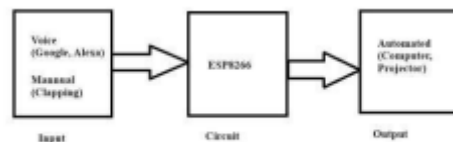


Fig: Block diagram of IoT Based Smart Classroom

Methodology

To help people to participate the learning activities. Depending on the pedagogy the lecturer chooses, the proper devices in a smart classroom can be configured to provide the desired functionality. For example,

- Rich content can be accessed via the multimedia devices, including the mobile devices. • Learning materials can be organized into an information application.
- Facilities in the October 26, 2017 classroom can be flexibly configured.
- Interactive applications can be used as learning contents. • Students' performance can be evaluated dynamically and seamlessly.
- Evaluation results can be instantly collected and analyzed.
- Students' feedbacks and behaviors can be monitored. Rather than a space for learning together (as a traditional classroom does), a smart classroom is actually an infrastructure for hosting various kinds of learning applications. Furthermore, each application could be a system for delivering the knowledge and analyzing the outcomes.

Conclusion

In conclusion, AI and IoT-based smart classrooms represent a promising frontier in education. This paper will develop deeper into the technical details, real-world implementations, challenges, and potential future developments of this innovative educational approach, paving the way for more efficient and engaging learning environments. As in this proposed system the person can carry out the work remotely. By one clap the projector is turn on and by two claps PC is turn on and also by the use of AI based models like siri or alexa.

References

- 1.K. Atukorala, D. Wijekoon, M. Tharugasini, I. Perera, and C. Silva, "SmartEye - Integrated solution to home automation, security and monitoring through mobile phones," NGMAST 2009 - 3rd Int. Conf. Next Gener. Mob. Appl. Serv. Technol., no. May 2016, pp. 64–69, 2009.
- 2.P.S. Nagendra Reddy, K. T. Kumar Reddy, P. A. Kumar Reddy, G. N. Kodanda Ramaiah, and S. N. Kishor, "An IoT based home automation using android application," 2016 Int. Conf. Signal Process. Commun. Power Embed. Syst., pp. 285–290, 2016.
3. K. Puthea, R. Hartanto, and R. Hidayat, "A Review Paper on Attendance Marking System based on Face Recognition," 2017 2nd Int. Conf. on Information Technology, Information Syst and Elect Eng., pp. 303–308, 2017.
- 4.G. Sfikas, "Creating a Smart Room using an IoT approach," ResearchGate, no. May, 2016.
5. J.Lohokare, R. Dani, A. Rajurkar and A. Apte, "An IoTecosystem for the implementation of scalable wireless home automation systems at smart city level," TENCON 2017 - 2017 IEEE Region 10 Conference, Penang, 2017, pp. 15031508.
6. C. B. Yuvaraj, M. Srikanth, V. S. Kumar, Y. V. S. Murthy and S. G.Koolagudi, "An approach to maintain attendance using image processing techniques," 2017 Tenth International Conference on Contemporary Computing (IC3), Noida, 2017, pp. 1-3.
7. R. Ani, S. Krishna, N. Anju, M. S. Aslam, and O. S. Deepa, "IoT based patient monitoring and diagnostic prediction tool using ensemble classifier," 2017 Int. Conf. Adv. Comput. Commun. Informatics, pp. 1588–1593, 2017.
- 8.P.K. Binu, K. Thomas, and N. P. Varghese, "Highly secure and efficient architectural model for IoT based health care systems," 2017 Int. Conf. Adv. Comput. Commun. Informatics, ICACCI 2017, vol. 2017–Janua, pp.

487–493, 2017. 9. K. M. O. Nahar and R. M. Al-Khatib, "EPSSR: Energy preserving system for smart rooms," 2017 2nd International Conference on the Applications of Information Technology in Developing Renewable Energy Processes Systems (ITDREPS), Amman, 2017, pp. 1-6. 10.L. Cuimei, Q. Zhiliang, J. Nan, and W. Jianhua, "Human face detection algorithm via Haar cascade classifier combined with three additional classifiers," 2017 13th IEEE Int. Conf. Electron. Meas. Instruments, pp. 483–487, 2017. 11.R.C. Jisha, A. Jyothindranath, and L. S. Kumary, "Iot based schoolbus tracking and arrival time prediction," 2017 Int. Conf. Adv.Comput. Commun. Informatics, pp. 509–514, 2017. 12.A. Ciuffoletti, "OCCI-IoT: An API to Deploy and Operate an IoT Infrastructure," IEEE Internet Things J., vol. 4, no. 5, pp. 1341– 1348, 2017. 13.Siyu Yang, You Song, Honglei Ren, Xinxing Huang, "An automated student attendance tracking system based on voiceprint and location", Computer Science Education (ICCSE) 2016 11th International Conference on, pp. 214219, 2016. 14.P.K. Binu, V. Akhil and V. Mohan, "Smart and secure IOT based child behavior and health monitoring system using hadoop," 2017 International Conference on Advances in Computing, Communications and Informatics (ICACCI), Udupi, 2017, pp. 418- 423.

