Title : Project Registration & Progress Review **FF No. 180**

Department: Multidisciplinary Engineering	**Academic Year:** 2023-24
Semester: I	**Group No. : 1**
Project Title: "ClassSense : Automated Classroom Occupancy Monitoring and Allocation System with IoT Integration"	
Project Area:	

Group Members Details:

Sr. No.	Class & Div.	Roll No.	G.R.No.	Name of Student	Contact No.	Email ID
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Name of Internal Guide: PROF .KURUNDKAR SANGEETA
Contact No. & Email ID:

Project approved / Not approved

Guide **Project Coordinator** **Head of Department**

Project Synopsis

Introduction :

This project is an advanced system designed to enhance the management and utilization of educational spaces. Its primary objective is to monitor the occupancy status of classrooms in real-time and notify relevant teachers and students when a classroom becomes unoccupied. This project integrates various technologies, including occupancy sensors, real-time data processing, and communication systems. By doing so, it streamlines the allocation of available classrooms, minimizes resource wastage, and ensures optimal use of educational facilities. In an era of increased demand for flexible and efficient space management, this project offers a solution that can significantly improve the scheduling and utilization of classrooms within educational institutions**.**

This project aims to optimize the use of available resources, reduce energy consumption, and enhance the overall learning experience. By automating the monitoring of classroom occupancy, educational institutions can better adapt to the changing needs of students and staff, promoting a more efficient and safer learning environment. The Automated Classroom Occupancy Monitoring system offers a practical and data-driven approach to improve classroom management, which is essential for educational institutions seeking to meet the demands of the modern educational landscape. The project promises to be a pivot al solution for educational institutions.

Problem Statement

In modern educational settings, the traditional methods of classroom scheduling and occupancy management are facing challenges. Many educational institutions struggle with inefficient classroom space utilization. Classrooms are often allocated based on predetermined schedules, which can lead to suboptimal use of these resources. This results in empty classrooms that could be put to better use and can lead to scheduling conflicts when more spaces are needed than initially allocated. To address this issue, our project aims to develop a system that can accurately detect when a classroom becomes unoccupied and notify faculties and students in real-time. This solution will help institutions maximize classroom usage, reduce resource wastage, and enhance the overall efficiency of space management."

Literature Review:

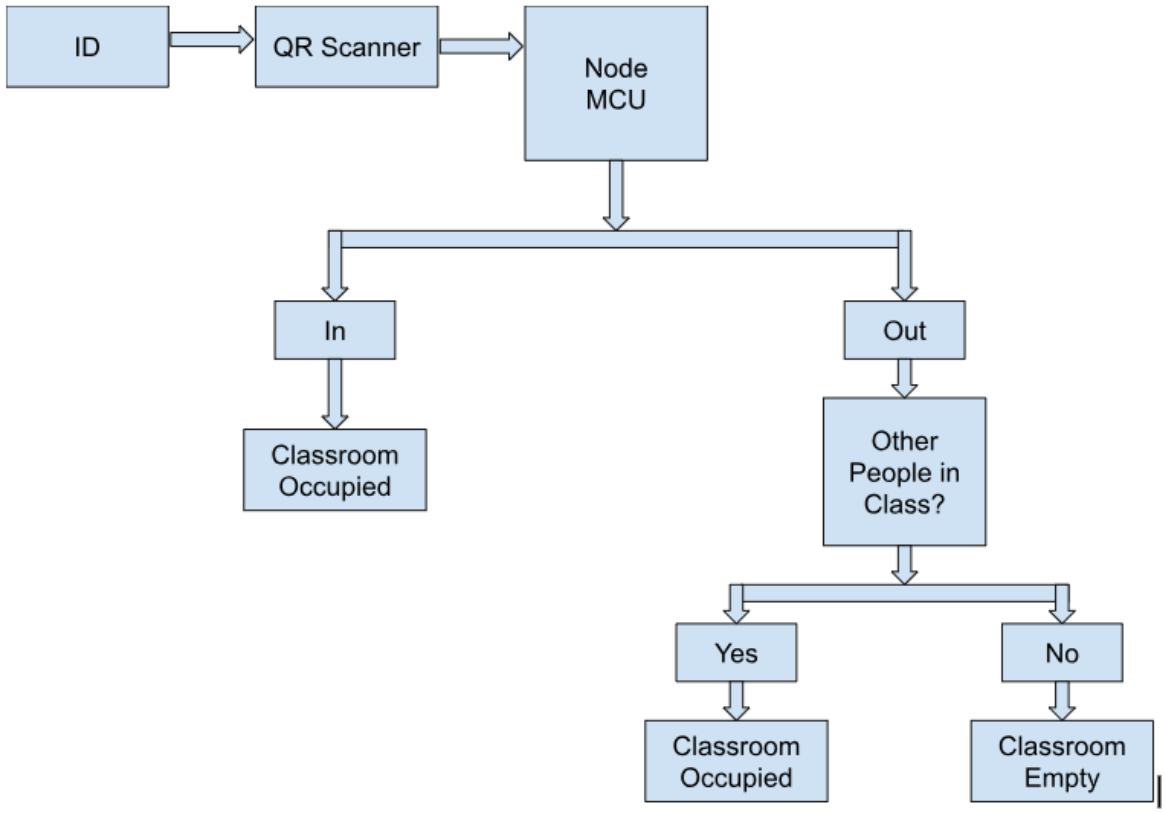
Sr.no	Paper Title	Year	Methodology
1.	Occupancy Estimation Using Sensor Data Analytics	2018	Monitoring indoor environment parameters inside the classroom in real time
2.	A Classroom Occupancy Monitoring System	2014	Monitor a building's environmental conditions and to correlate them with the number of people inside the monitored environment.
3.	Counting students using Open CV and Integration with Firebase for Classroom Allocation	2020	Counting and allocation of classrooms based on occupancy ratio.
4.	Experiences with IoT and AI in a Smart Campus for Optimizing Classroom Usage	2019	Develop an optimal allocation of classes to rooms based on predicting attendance

Objective :

The objectives aim to improve the efficient use of classroom spaces. The objectives of a project focused on automated classroom occupancy monitoring include:

1) To develop a system that can accurately and continuously monitor the occupancy of classrooms in real time.
2) To ensure the system provides accurate occupancy information
3) To create a user-friendly interface for users to access occupancy information.

System Architecture



Software components:

Arduino
Python, VS code

Hardware components:

Esp8266
Scanner
Sensor

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Group No.	1		
Activity	Review Schedule	Progress Review Report submitted	Signature of Guide
Review 1	Mid Sem. Semester	Yes / No	
Review 2	End of Semester	Yes / No	

Format of Progress Review Report:

Review No.: 1 **Group No.:** **Date:**

Progress Review Report

- Conducted a comprehensive literature review on existing systems.
- Identified the what is a disadvantages of existing system.
- Then we are all discuss about features that we want to include in project.
- Finally we divide the features between our team members for Implementing.

1.Soham Mane (12320062):

- Implements the feature for taking QR code input from user.
- Sending the count of class on web interface by checking whether student is entering the class or leaving.

2.Mihir Prasad (12320051):

- Designing user interface's of the webapp.
- Storing count data from esp module into the database.

3.Aryan Jadhav (12320073):

- Implements feature for storing status of class(empty/occupied) in the database and reflecting it on the webapp.
- Implements the feature for updating the number of students present inside the class on the webapp.

4.Sharvari Jadhav (12320128):

- Implements the feature to check if the class is empty.
- Implementing the function for maintaining the state of webapp with latest status of the class(empty/occupied).

Signature of Guide: