Project Brief: IoT-Based Server Room Monitoring and Access Control System

Project Overview

The IoT-Based Server Room Monitoring and Access Control System is an IoT-based solution designed to enhance security and access management in a server room. The system integrates intrusion detection, video surveillance, and RFID-based access control, ensuring that only authorised personnel can enter. In the event of unauthorised access, the system will send real-time alerts to administrators via a dedicated Android application.

Key Features

1. Access Control

RFID-based authentication: Users must scan an RFID tag to gain access.

User roles and permissions: Different access levels (e.g., admin, IT staff, maintenance).

Logging and tracking: Record each access attempt with timestamps.

1. Intrusion Detection & Alerts

PIR Motion Sensors: Detect movement within the server room when unauthorised.

Door & Window Sensors: Alerts if forced entry is detected.

Android App Notifications: Immediate alerts to administrators upon intrusion.

SMS & Email Alerts: Backup notifications in case of app failure.

1. Video Surveillance & Logging

IP Camera Integration: Captures live footage when motion is detected.

Cloud Storage: Saves video clips of detected intrusions for future review.

Mobile App Live Feed: Admins can remotely monitor the server room in real time.

System Architecture

The system will consist of the following components:

Microcontroller/Gateway: Raspberry Pi for processing sensor data.

RFID Module: To handle access control.

IP Cameras: For video surveillance.

Mobile Application: For real-time alerts and remote monitoring.

Database & Cloud Services: Store logs, video footage, and access records.