



**15 OCTOBER 2023
SLOT 2**

Smart Remote Monitoring System

Experiential Learning Activities

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AUTOMATIC DOORBELL RINGING SYSTEM

Objective

The primary objectives of this project are as follows:

- To design and implement an IoT-based automatic doorbell ringing system.
- To enhance home security and convenience by detecting human presence at the entrance.
- To integrate sensors, microcontrollers, and IoT platforms for system operation.

Need Analysis

The need for an automatic doorbell ringing system arises from the following factors:

- Ensuring home security by detecting the presence of individuals at the door.
- Providing convenience to homeowners by automating the doorbell.
- Integrating modern IoT technologies for real-time monitoring.

Working Methodology

Our project follows a comprehensive working methodology, which includes the following steps:

System Design:

Identify the components and sensors needed for human presence detection.

Design the hardware architecture of the doorbell system. Use an ultrasonic sensor to detect the presence of humans, buzzer to act as the bell and an LED to tell whether the circuit is on.

The Arduino board plays a crucial role in this project. It serves as the microcontroller and the central processing unit for your project.

Hardware Implementation:

Assemble the hardware components, including motion sensors and microcontrollers.

Use bread board and jumper wires to make the necessary circuit connections.

Software Development:

Write the code for sensor data collection and analysis.

Implement the logic for automatic doorbell activation.

IoT Integration:

Connect the doorbell system to an IoT platform for remote monitoring.
Set up data transmission protocols for real-time alerts.

Testing and Validation:

Test the system for human presence detection.
Validate the automatic doorbell functionality.

Results

Detection Accuracy: The UV sensor demonstrated accurate human presence detection. When a person was within its sensing range, the system consistently activated the doorbell.

Real-Time Responsiveness: The project exhibited real-time responsiveness. Upon detecting a person, the doorbell rang promptly, making it suitable for its intended application.