

QIS College of Engineering and Technology

(Autonomous)

*Directorate of Project Skilling and Research*

**Project Datasheet**

|  |  |
| --- | --- |
| **Project Title** | **AI BASED SMART SECURITY SYSTEM** |
| **Batch Number** | **B5** |
| **Domain** | **MACHINE LEARNING ,ARTIFICIAL INTELLIGENCE** |
| **Mentor Name** | **DR.D.VIDHYANANDHA BABU** |
| **Mentor Signature** |  |

**Abstract (150 words)**

In recent years, advancements in artificial intelligence have revolutionized security systems, making them more intelligent and responsive. This project presents an AI-based smart security system designed to enhance security measures through the integration of motion detection, facial recognition, and voice recognition technologies. The system operates by continuously monitoring the environment using high-definition cameras and sensitive motion sensors. Upon detecting any movement, the system instantly activates its facial recognition and voice recognition modules to identify and authenticate individuals present in the monitored area.

The facial recognition component captures and analyzes facial features, matching them against a database of known individuals to verify identities. Simultaneously, the sentence recognition module processes audio inputs to recognize specific phrases or sentences spoken by individuals. This dual-layered authentication mechanism ensures high accuracy and significantly reduces the likelihood of false alarms.

The AI-based smart security system provides real-time alerts and allows remote access via a mobile application, enabling users to monitor and control the system from anywhere. By combining these advanced technologies, the system offers a robust and efficient solution for residential, commercial, and industrial security needs. This project demonstrates the practical application of AI in security systems, enhancing safety and peace of mind for users

**Objective (one or two points)**

1. The objective of this project is to develop an AI-based smart security system that enhances security through the integration of motion detection, facial recognition, and sentence recognition technologies. The system aims to accurately identify and authenticate individuals in real-time by detecting movement, analyzing facial features, and recognizing specific spoken sentences.
2. This multi-layered approach is designed to minimize false alarms, provide reliable access control, and deliver timely alerts, ensuring a robust and efficient security solution for various environments.

**Block Diagram (Draw, don’t copy and Paste)**

start

Motion  
Detection?

Security Systems  
Activate

Activate Face Recognition

Activate Sentence Recognition

Face   
Recognised?

Authorised Sentence?

Only if both are false else end

Trigger alert  
(Notify User)

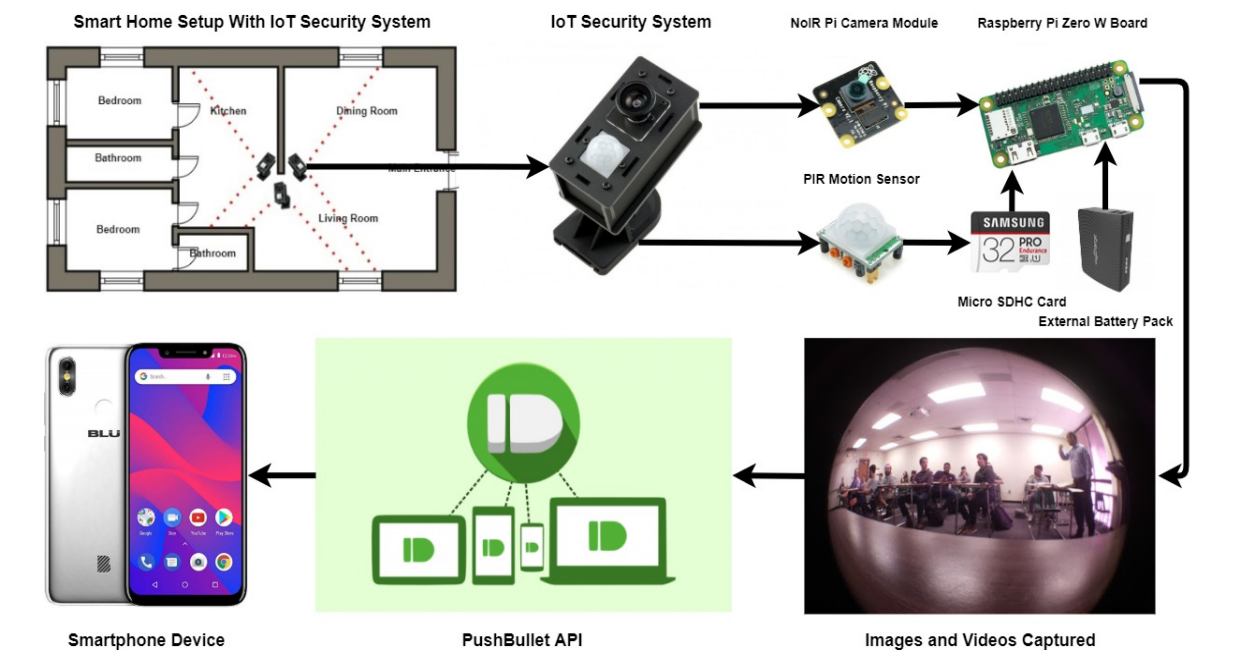
END

Here's the block diagram for AI-based smart security system. It illustrates the flow between different modules:

1. Motion Detection Module: Detects any movement in the monitored area.
2. Facial Recognition Module: Activated upon motion detection to identify individuals.
3. Sentence Recognition Module: Analyzes spoken sentences for further identification and verification.
4. AI Processing Unit: Central unit that processes inputs from the facial and sentence recognition modules.
5. Alert/Notification System: Sends real-time alerts based on the processed data.
6. User Interface & Remote Access: Allows users to monitor and control the system remotely.

This diagram visually represents how these components interact within the security system

**3D Diagram of the proposed prototype (use 3D design software’s / Pencil Sketch)**

****