

Protectifier

An Anti-Felony Flooring Mat

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Project Title – Protectifier: An Anti-Felony Flooring Mat

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Protectifier: An Anti-Felony Flooring Mat

Abstract -:

Security and Surveillance has always been a necessity for the urban population. With the rapid urbanization and development of big cities and towns, the graph of crimes is also on the rise. To secure and guard our house in our absence, **Protectifier** comes to rescue.

Protectifier is a secure flooring tile connected with IoT when we go out of our home, this security & surveillance system can be switched on, then whoever tries to break inside the house the system passes the information over Internet of Things (IoT). This system is powered by ESP32 CAM which includes 24/7 live streaming of one's property or belongings. The proposed prototype of Protectifier comprises of a Tile, Pressure Sensors, a Siren, an ESP-32 CAM Module, Live Streaming and Photo capturing.

Protectifier is an **Anti-Felony Mat** which is an essential, productive, reliable, and economical security tool which anyone and everyone can utilize. It works on 100% efficacy and is designed to protect and safeguard one belongings and intellectual properties from unauthorized access and it is a likely-looking tool for smart and urban cities to rely on.

Literature Survey -:

- Existing System -:

Security surveillance system used to prevent felony in private and public locations. Human surveillance is one of the traditional and important activity concerning security. Due to increase demand of security in different domains and locations simultaneously, development of smart and efficient surveillance systems has attracted immense interest in recent years. Some of the existing surveillance tools are – Video surveillance, Biometrics, Burglars Alarms, Environmental Sensors, Fire Alarms and Smoke Detectors, Wi-Fi enabled Cameras, etc.

Most of these tools are based on monocular camera and are limited by their fixed view angles and thus cannot provide sufficient depth information for person recognition and tracking.

- Proposed System -:

This paper proposes an efficient, reliable, and cost-effective surveillance system. Protectifier is a secure flooring tile connected with IoT which when is switched on, tracks the intruders to one's property. The IoT based system operates basis the pressure sensors that detects the pressure of the intruder observed on the tile. If it surpasses the said threshold, then the system's ESP32 CAM Wi-Fi module is activated to get the live streaming and to capture the unauthorized intruder. It also immediately

notifies the owner over the connected local device, i.e. mobile, laptop, etc. and an image can be captured and saved on the system for proof. Also, a Siren sound alerts the surroundings.

Tools & Technologies -:

Protectifier is a secure flooring tile connected with IoT, which is a strong tool for securing and safeguarding one's belongings and for restricting unauthorized access. The proposed prototype has a Tile, Pressure Sensors, Siren, ESP-32 CAM Module, Live Streaming and Photo Capturing.

Design & Implementation -:

Protectifier is an IoT based security tool to secure and safeguard one's belongings and intellectual properties. This system is a secure flooring which is digitally automated, when we go out of our home or want to monitor one's belongings, the system can be switched on, and the unauthorized access can be seized over electronic device. This system is powered by ESP32 CAM Module; The implementation of the system includes – Tile for demonstration purpose, Pressure Sensor attached below the tile to detect the pressure of impersonator, Camera to get the live streaming and to capture the impersonator.

So, whenever there is an unauthorized access in the house, or someone tries to break inside the house, immediately it will notify the owner over the connected local device i.e. mobile, laptop, etc. and an image can be captured and saved on the system for proof! Also, a Siren sound will alert the surroundings.

Design -:

Protectifier's prototype includes the following in its physical design –

- **Tile Dimensions:** 23.5cm x 38 cm [working area].
- **Pressure Sensors:** It has threshold of approximate of 120kgs of weight.
- **ESP 32 CAM Wi-Fi Module:** Live Streaming & Photo Capturing Interface.
- **Bread Board:** All the components and connections are managed on 1 breadboard.
- **Resistors:** 3 Carbon Resistors to manage current flow and for signal levelling.
- **Capacitors:** 1 Capacitor for electrical networks.

- **LED:** Proper connection of wires and system is ensured through 1 LED.
- **Alarm Details:** 1 DC Siren [DC Sound Index – 120 dB Sound].
- **Notification process to the owner:** It is sent on the connected local device i.e. mobile, laptop, etc.

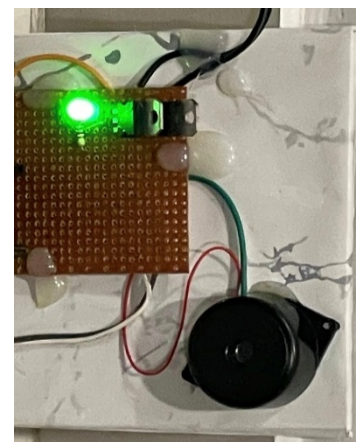
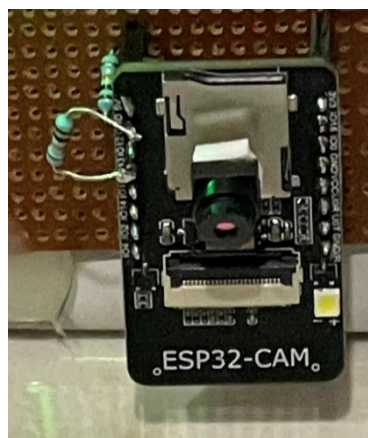
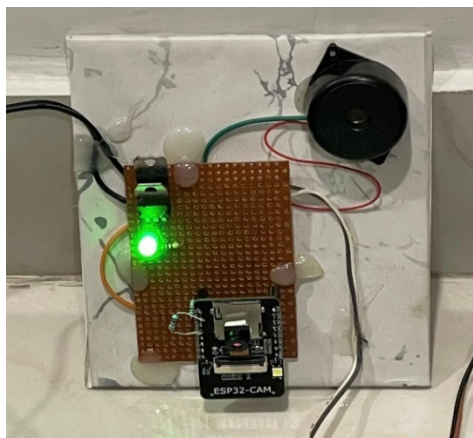
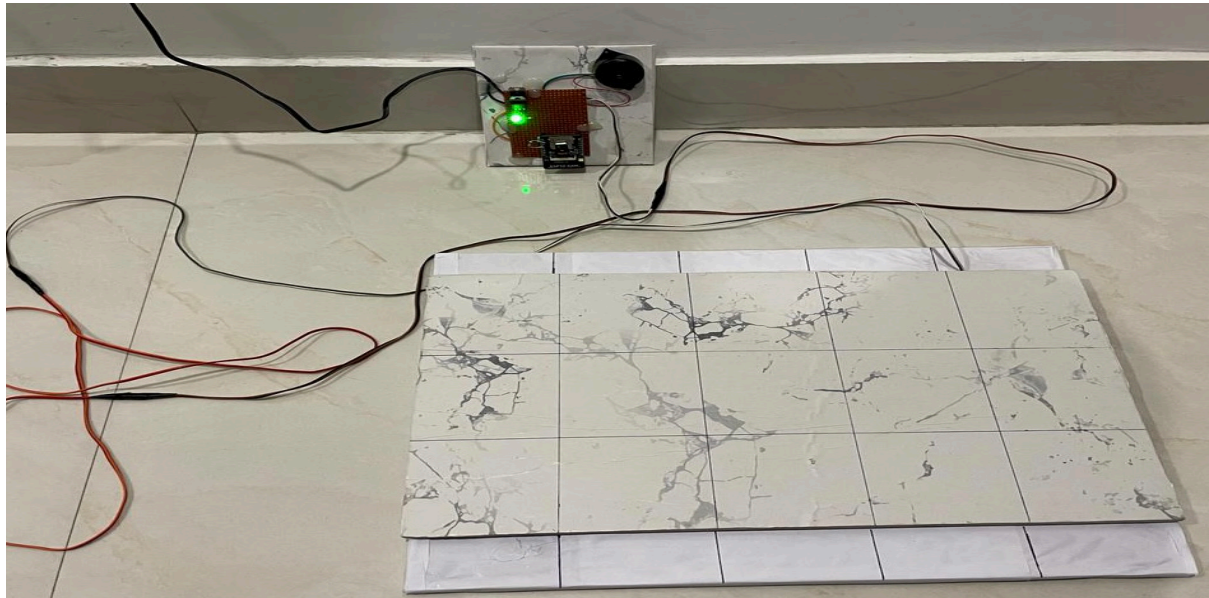


Fig 1: The Prototype

- **Working of the System -:**
 - Whenever required, switch on Protectifier. The system provides connectivity between Protectifier and local devices i.e. mobile, laptop, etc. through IP Address over the browser.
 - Whenever there is an unauthorised access in the house, pressure sensor gets activated and record the pressure and weight of the person.

- c) Along with it, to alert the surroundings, siren buzzes.
- d) Over the interface live streaming is available to safeguard the property.
- e) If there is any unauthorised access, the system will notify the owner and provides an option to capture the proof for unauthorised access. The captures can be saved on local devices.

Methodology Opted -:

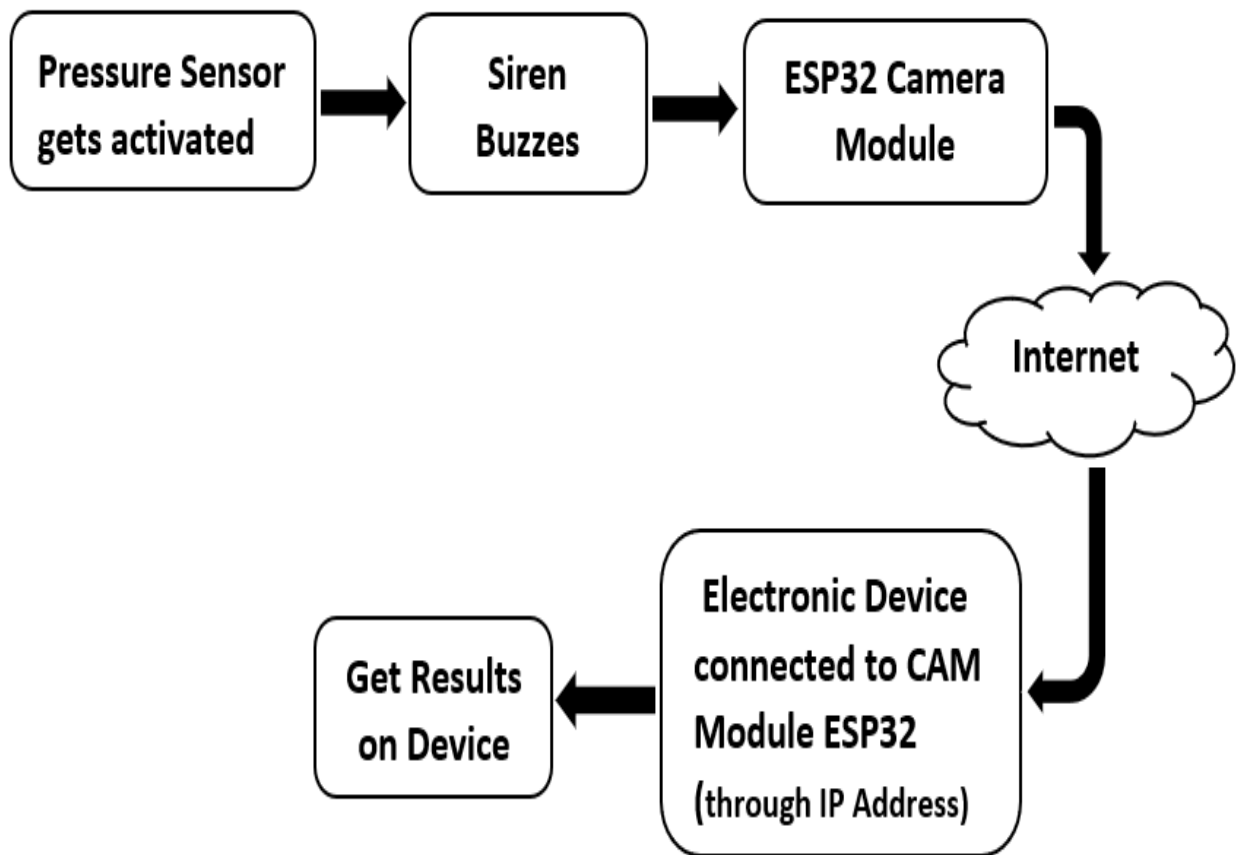


Fig 2: Methodology adopted for Protectifier

Link of the working system: <https://drive.google.com/drive/folders/1-3gHw1vj4NMZhEZe3wijOKdoWZu8yxpd>

Results -:

Whenever there is any unauthorized access, access in the house, or someone tries to break inside the house, immediately it will notify the owner over the connected local device i.e. mobile, laptop, etc. and an image can be captured and saved on the local devices for proof! Also, a Siren sound will alert the surroundings.

So expected output are alerting the surroundings as well as downloading series of captures of impersonator. Besides these major evidences, pressure and weight of the impersonator can also be studied, which will also help in providing gender insights of the impersonator. Thus, these results provide quality evidences to solve the unpropitious felony and to seize the deceiver.



Fig 3: Flash represents that Impersonator Image is captured; Also, siren alerts the surrounding.

Unique Features and Future Prospects of the System -:

→ Present Peculiarities -:

- Date & Time of the felony.
- Live streaming and Series of Digital Images of Swindler or of felony.
- Siren to alert the surroundings.
- Pressure Sensors for generating data of larceny or crime scene - to detect weight of swindler, foot prints, gender, etc.

→ Future Peculiarities -:

- E-Mail Notification to the owner and concerned authorities (Police Station, or concerned authorities).
- Facial Recognition.

Conclusion -:

This Model will have a quality impact on the society; It will help prevent and reduce felony; It is minimalistic capital security tool which can be stipulated by anyone and everyone, provides live streaming and proofs for any misunderstandings or mis-happenings. The overall implementation cost of this prototype is ₹1800/- only.

Considering everything, Protectifier is a quality security-surveillance tool for urban, developing, and smart cities.

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