

DETECTING HIDDEN CAMERA THROUGH SMART WATCH

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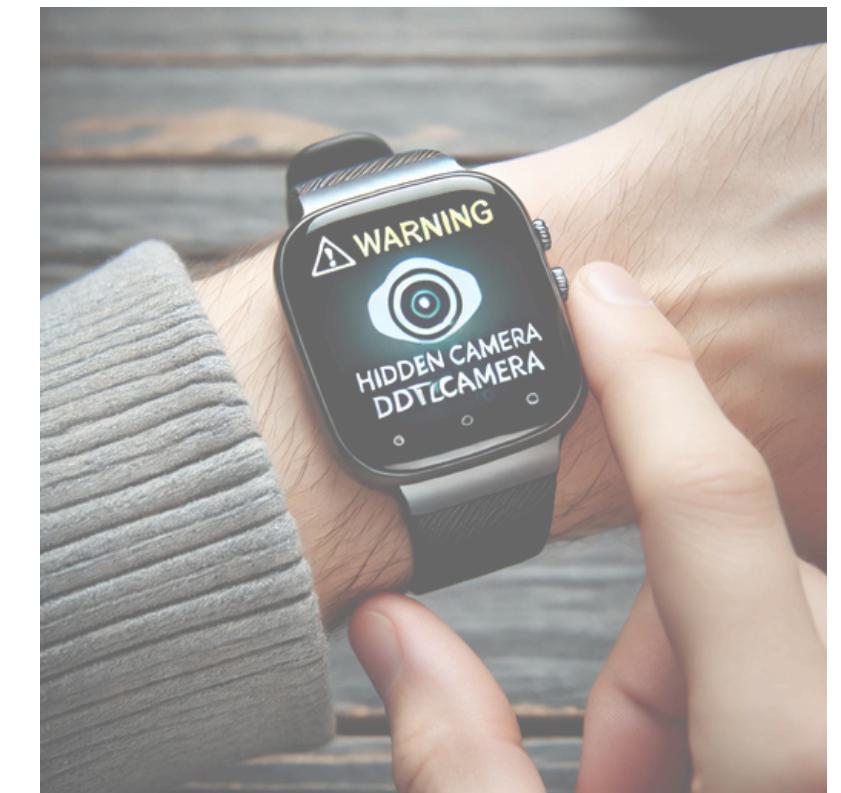


ABSTRACT

Hidden cameras are a growing threat to privacy, making it important to detect them easily. This project introduces a smartwatch-based hidden camera detector that provides a wearable and real-time solution for finding hidden cameras.

The smartwatch is powered by an ESP32 chip and uses Infrared (IR) reflection, RF signal detection, magnetic field sensing, and thermal detection to locate cameras. When a hidden camera is detected, the smartwatch instantly alerts the user with vibrations and screen notifications.

This device is small, easy to use, and energy-efficient, making it a useful security tool for hotels, offices, Wash rooms, and public spaces. It helps people—especially women—protect their privacy and feel safe.

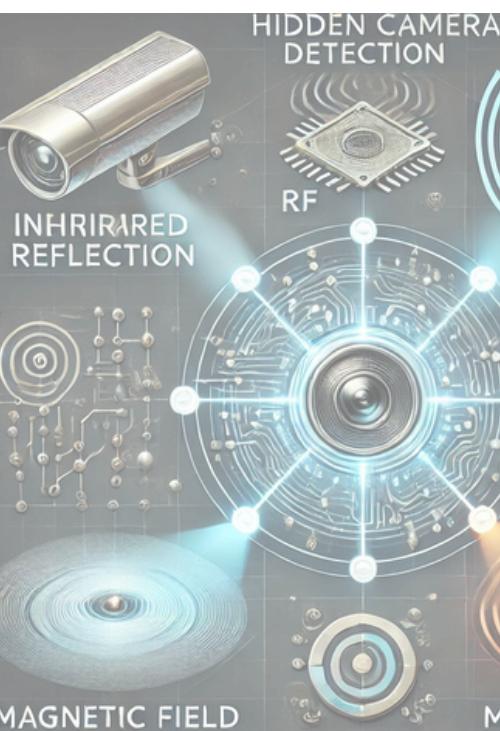
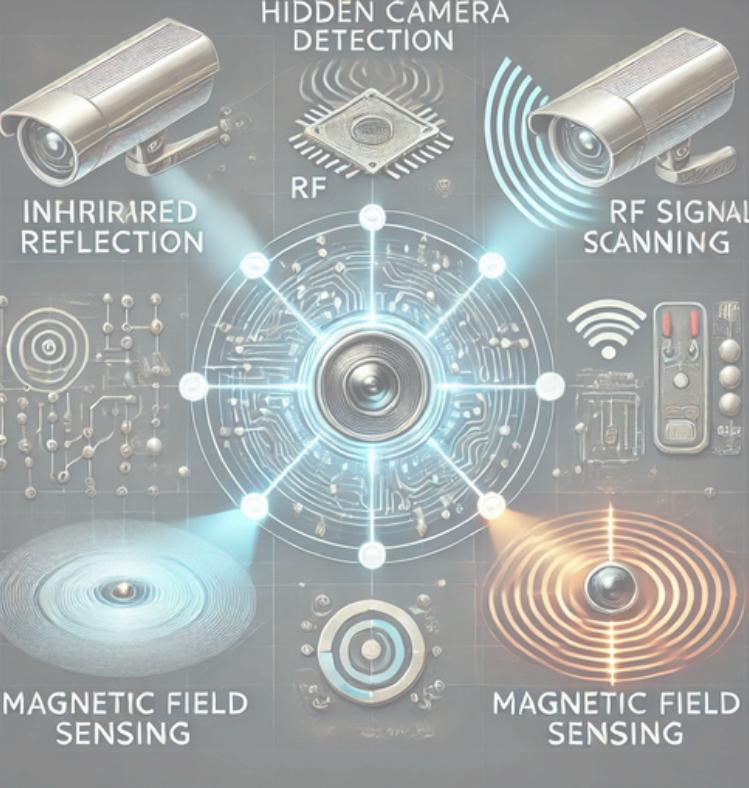


INTRODUCTION

THE PRESENCE OF HIDDEN CAMERAS IN PRIVATE SPACES HAS BECOME A GROWING CONCERN, AS SPOTTING THEM WITH THE NAKED EYE IS OFTEN DIFFICULT. TO ADDRESS THIS ISSUE, THIS PROJECT INTRODUCES A SMARTWATCH-BASED HIDDEN CAMERA DETECTOR THAT OFFERS A SIMPLE WEAR-AND-DETECT APPROACH TO ENHANCE PERSONAL SECURITY.

AT ITS CORE, THE DEVICE UTILIZES AN ESP32 CHIP AND FOUR KEY DETECTION METHODS:

- **INFRARED REFLECTION (IR)** – IDENTIFIES HIDDEN LENSES BY SHINING AN INVISIBLE LIGHT.
- **MAGNETIC FIELD SENSING** – DETECTS UNUSUAL MAGNETIC FIELDS FROM ELECTRONIC CIRCUITS.
- **RF SIGNAL DETECTION** – SCANS FOR SUSPICIOUS WIRELESS TRANSMISSIONS.
- **THERMAL DETECTION** – RECOGNIZES HEAT EMISSIONS FROM CONCEALED DEVICES.





LITERATURE SURVEY

S.no	Title	Author	Methodology used	Drawbacks
1	Hidden camera detector & jammer using IOT	Kameswara prasad	IR sensor, RF detector	Cost and Complexity
2	Women Safety Portable Hidden Camera Detector	Sudhakar Alluri	RF detector	Not wearable approach
3	Hidden camera detection	Vaishali Koul	Image Analysis	Not Accurate
4	Women Safety Application <u>With</u> Hidden Camera Detector & Live Video Streaming	Aakashkumar S	GPS Tracker, Magnetometer	Internet Dependency

EXISTING SYSTEM

Most existing hidden camera detectors rely on handheld devices with manual scanning and visual indicators.

They often lack real-time notifications, portability, and integration with wearable technology.



PROPOSED SYSTEM

The proposed system uses an ESP32-based setup with IR, RF, magnetic, and thermal sensors for accurate detection.

It provides real-time alerts on a smartwatch, enhancing portability, automation, and user convenience.

PRO'S

- PORTABLE & CONVENIENT
- REAL-TIME ALERTS
- WEAR AND DETECT APPROCH
- ENHANCES PRIVACY
- COST-EFFECTIVE
- USER EMPOWERMENT



PROBLEM STATEMENT

Hidden cameras can invade people's privacy in places like hotel rooms or bathrooms.

This project finds those cameras using small sensors connected to a (ESP32).

If it finds something suspicious, it alerts the person with a sound, vibration, or message.



HARDWARE AND SOFTWARE REQUIREMENTS



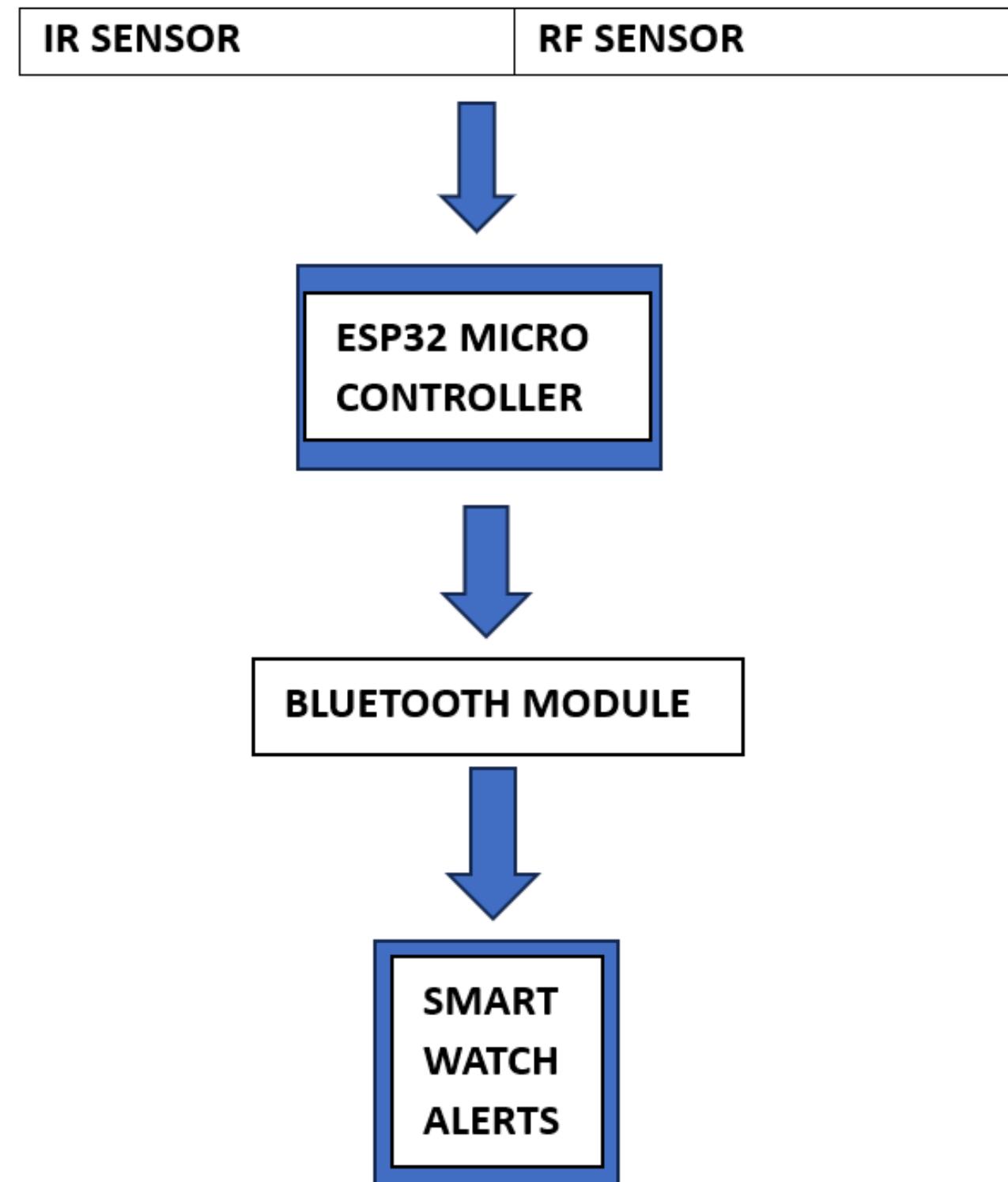
HARDWARE:

ESP32 Microcontroller
IR LED & Sensor
RF Detector
Magnetometer Sensor
Thermal Sensor
Smartwatch Display & Vibration MotorPower Management

SOFTWARE:

Arduino IDE
ESP32 Board Package
Sensor Libraries
Embedded C Programming
Bluetooth Communication
Real-time Alert Logic

SYSTEM ARCHITECTURE

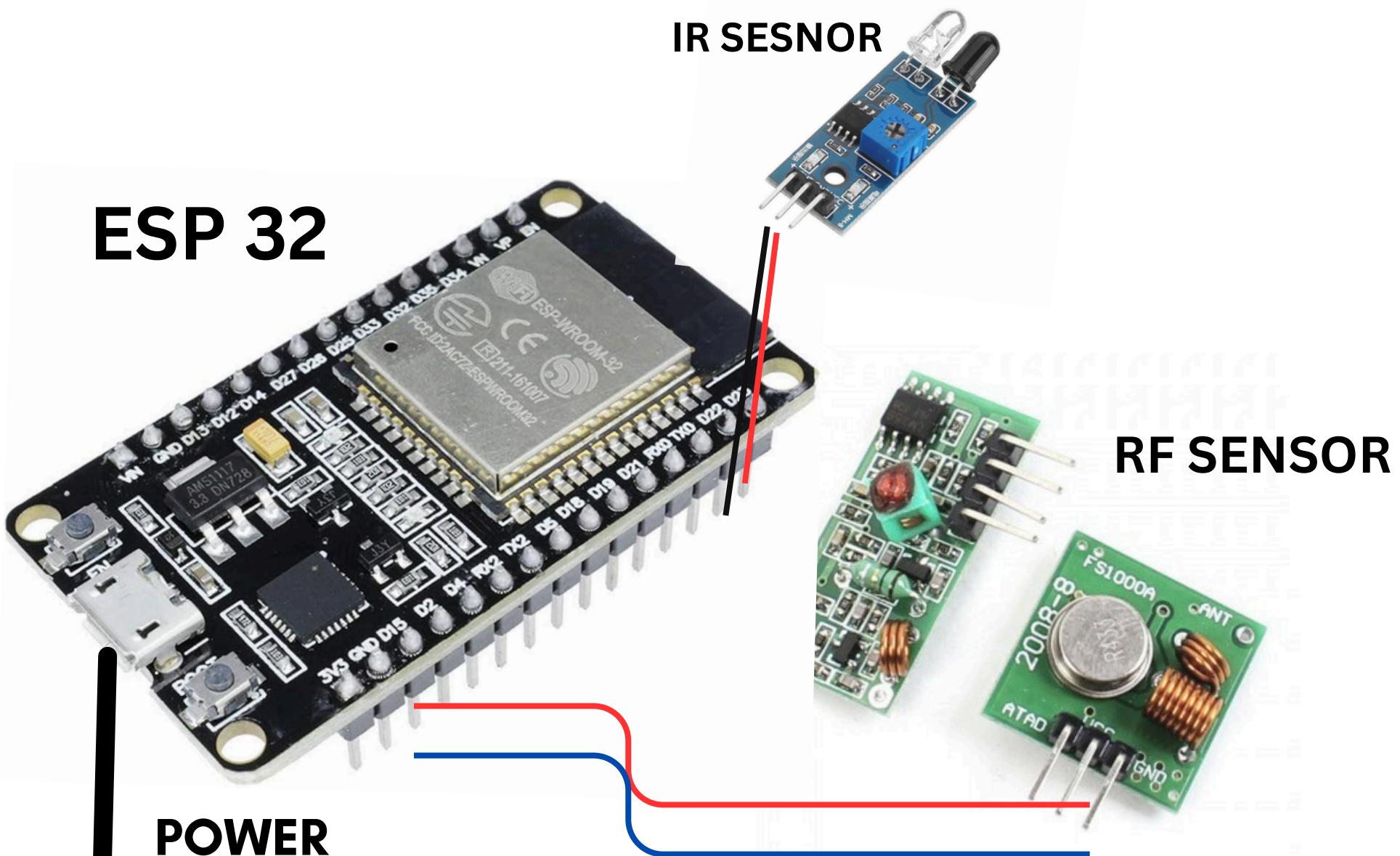


METHODOLOGY

The system uses four types of sensors—IR, RF, magnetic, and thermal—to detect potential hidden cameras based on their characteristic signals and emissions. These sensors are connected to an ESP32 microcontroller, which collects and processes the data. If suspicious activity is detected, the ESP32 communicates wirelessly via Bluetooth or Wi-Fi to a smartwatch, where alerts and logs are displayed in real time for user awareness.



RESULTS



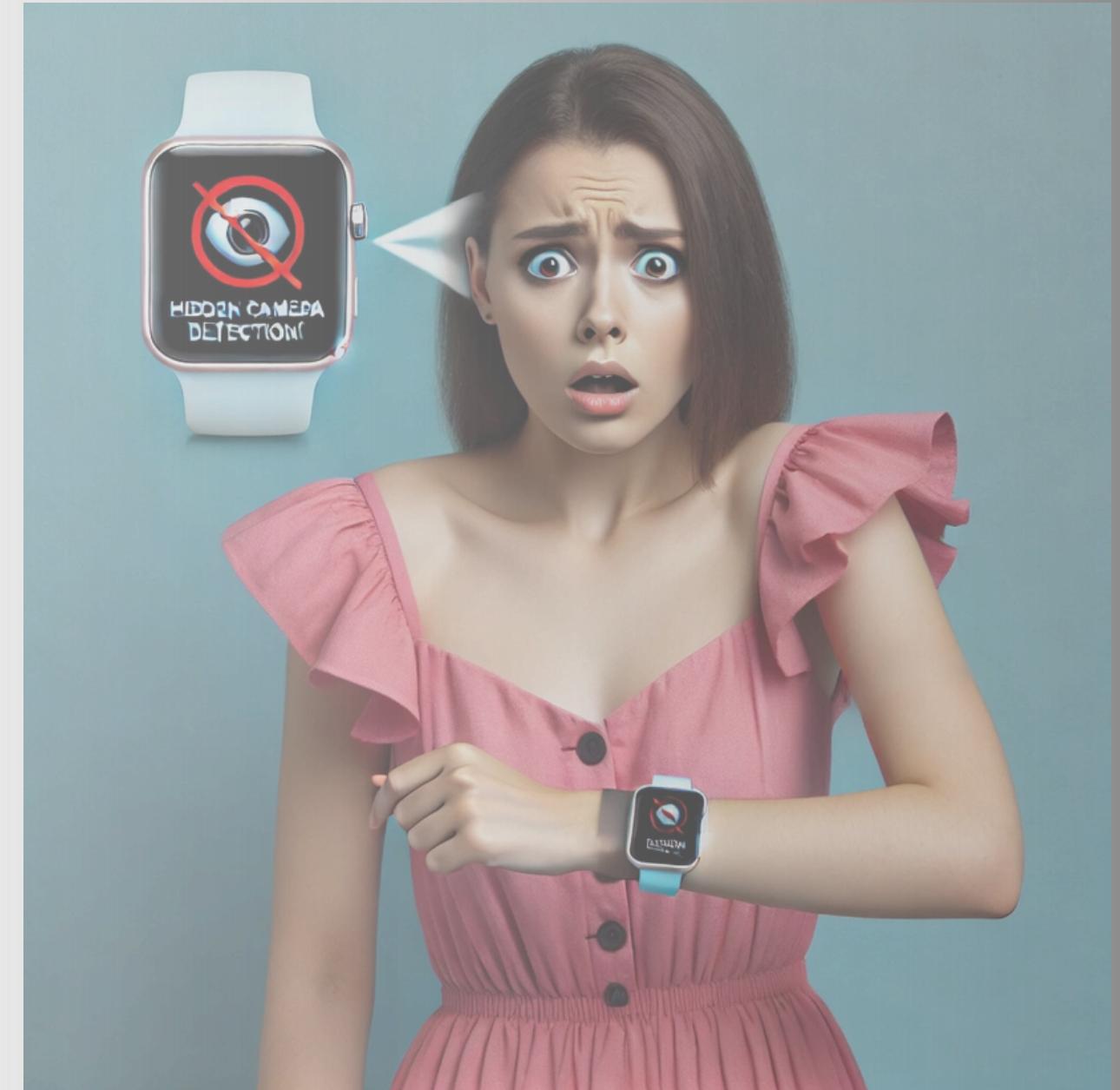
FINAL EXPECTED OUTPUT



CONCLUSION

The smartwatch-based hidden camera detector is a compact and reliable solution designed to enhance privacy and security, especially for women. By integrating multiple detection methods, it helps users identify hidden cameras quickly and discreetly.

Its real-time alerts and ease of use make it a practical tool for hotels, offices, changing rooms, and other public spaces. While some challenges exist, such as detection range and battery dependency, this device represents a significant step toward personal safety and awareness in today's digital age.



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[4] A Women Safety Portable Hidden camera detector and jammer

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THANK YOU!
STAY SAFE.