Asian Journal of Applied Science and Technology (AJAST)

(Peer Reviewed Quarterly International Journal) Volume 3, Issue 1, Pages 275-279, Jan-March 2019

Precise Shutter

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Article Received: 30 August 2018 Article Accepted: 29 December 2018 Article Published: 26 March 2019

ABSTRACT

As Technology is improving day by day, the privacy of the individual is highly disturbed by strangers. They use technology illegally that cause trouble to the public. Hidden cameras are used in public places that highly crosses the limit of privacy of the individuals. To avoid such problems, there are many mobile apps to detect such cameras in smartphones. Since the cost of such smartphones is relatively high, they can't be afforded by all the people because of its high price. These mobile application works only if the mobile phones have Magnetic sensor and IR sensor. To overcome this problem, we have designed a new device that can detect hidden cameras with the help of sensors and the intimate using Internet of Things. The specialty of this device is its price. It is cost efficient and it has higher accuracy.

Keywords: Technology, Privacy, Hidden Camera, Detector, IOT.

1. INTRODUCTION

If you suspect you're being watched, whether in a professional or a personal environment, finding and deactivating the device is of utmost importance. Camera detectors are designed to help users identify the device being used to infiltrate their privacy so that they can be disabled or removed from the premises. Camera detectors come in a variety of styles, price points, and use cases to ensure that each user will find the device that best suits their own needs for camera detection. This paper describes the detection of hidden cameras by developing a hardware device with the help of the magnetometer sensor through which the hidden cameras can easily be detected. The user may think the camera is easy to find out using the naked eye. Because of advanced technology, Hidden cameras are more advanced and it is not easy to predict (or) spot that by normal people. Not all the general public can be trained to find out the hidden cameras in public places. The issue of hidden cameras in public places is very paramount these days. These hidden cameras can be spotted in private places like washroom, trial room and so on. The movie shows as soon as they are released are recorded and put up for public use way before the actual legal CDs are made available in the market leading to huge losses for the actual owners who don't get their share of the benefit.

2. LITERATURE SURVEY

There is a number of systems and applications which are already present which use different types of technologies to detect spy or hidden cameras at different places.

A. HIDDEN CAMERA DETECTOR

Shrouded Camera Detector examinations the attractive action in the encompassing zone and on the off chance that similarity to a camera is distinguished, a caution is raised for further examination for getting hold of the covert agent camera. It finds its application in trial rooms, hotel rooms and places where cameras maybe are hidden.

CITE THIS ARTICLE: M.Karthiga, A.Hieroni Anto Nics Raja, S.Praveen & V.Praveen Kumar, "Precise Shutter", *Asian Journal of Applied science and Technology,* Volume 3, Issue 1, Pages 275-279, Jan-March 2019

This app can also detect infrared lights. Also helps to share the location with friends easily. Radiation meter feature needs to have a magnetic sensor in your phone, otherwise, this feature will not work.

B. Glint Finder-Camera Detector

An android user application based on the principle of retro reflection and is used mainly for hidden camera lenses and dropped part of contact lenses. Essentially, it looks for the focal point flash radiated by the shrouded camera optics. Retro reflection is benefited utilizing a camera streak which appears as hotspots in the yield picture. Flash rate and duty cycles depend on the device's capability.

C. The Radio Frequency Detector

It involves a circuitry consisting of a number of resistors, a few capacitors, some typical ICs and Piezo-buzzer which makes a sound when a camera is detected. The basic principle of this device is a disc capacitor to detect the cell phone signal with a frequency of 0.9 to 3 GHz within a range of 1.5-meter radius.

3. PROPOSED SYSTEM

But such above kind of applications is only supported in high-cost Mobiles which cannot be used by all. However, there are people who don't know to use android phones. There are people who use only basic mobiles not the android. There are some people who don't use mobile phones at all. Such different persons can use this device to detect spy cameras. This paper describes the detection of hidden cameras by developing a hardware device with the help of the magnetometer sensor through which the hidden cameras can easily be detected. The magnetometer observes the environment and when there is any magnetic field change the magnetometer detects it indicating the presence of camera by LED light indication. To know the exact location of the hidden camera, the device has an IR lens through which the exact spot can be determined.

A. Magnetometer

The Analog Hall Magnetic Sensor 9031 is the smart sensor used to detect the magnetic field difference in the environment. Most of the hidden cameras are wireless and don't have attached memory storage device embedded as the single device. They are connected to a particular storage device with the help of wireless network like Bluetooth, Wi-Fi and so on. This concept will develop a different magnetic field in the surrounding of that hidden camera. Such a difference is detected with the help of this magnetometer.

B. IR Detection

Infra-Red Detector is the simple reflection based detecting features that helps the user to detect the exact location of the hidden camera. Most of the Hidden cameras can record in a dark environment with the help of IR. Infra-Red helps these cameras by providing a stable bright environment to shoot in night time too. These IR can be detected by providing the reflection principle in front of these devices. In a completely dark room, these IR can be spotted by providing a parallel reflection in front of these cameras. The same concept is used in a normal camera to detect the Infra-Red waves. This is the compact device that consumes the space of 10 cm * 5 cm in total size and the total weight of 50 gram.

If the user suspects any hidden camera in their surroundings, they can switch on this device. The magnetometer in the device will analyze any magnetic field difference in the environment. If any difference is detected, it is indicated with the help of buzzer and led diode. The reason behind this concept is, the hidden camera is mostly wireless device and makes the difference in the magnetic field in its surrounding. Such a difference is detected with the help of magnetometer.

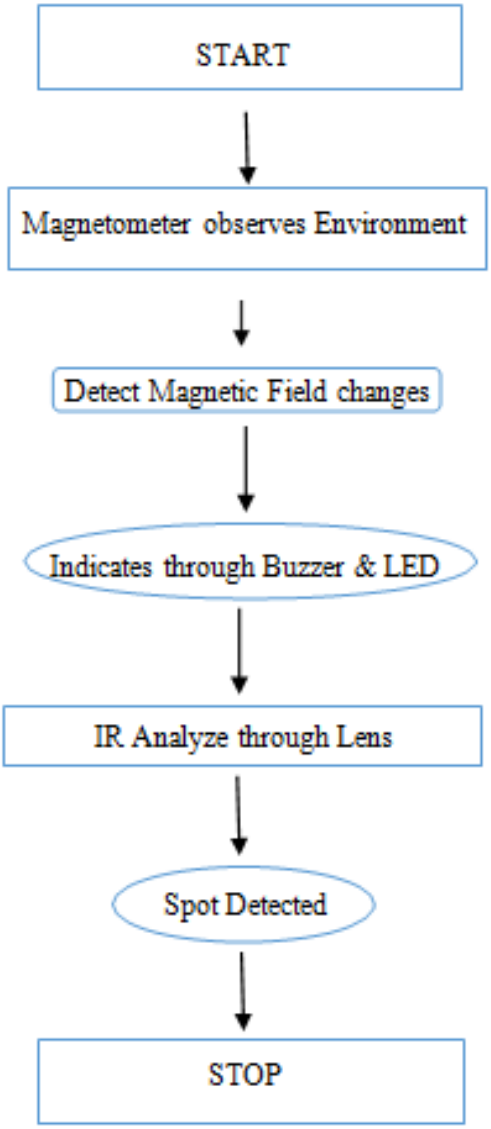

Fig 3.1

To ensure the exact spot of the hidden camera, the IR detector is used. The IR detector has blinking Red Led with a lens in the center. The user can spot the hidden camera by looking through the lens in front of spy camera. The reflection made by the hidden camera id spotted with the help of this device. The hidden camera has embedded with the IR diode. Such a diode is not visible to the naked eye. They can be identified only if the user provides a parallel reflection from the user side in front of the hidden camera. The blinking light from the user side will fall on the hidden camera lens and reflects back the light to the user side because of the reflection principle. This concept made possible to detect the exact location of the hidden camera. The working of this device is explained in the Figure 3.1.

4. RESULT & ANALYSIS

The Magnetometer is vector quantities characterized by its strength and direction because of magnetic field. The magnetic field of Earth can vary from 20,000 Milli.Tesla to 80,000 Milli.Tesla depending on location. The magnetic field created by hidden camera are in range of 40,000 to 45,000 Milli.Tesla. The analysis of the precise shutter is given in the Figure 4.1

Magnetic field range	0.2 to 7 Tesla
Absolute accuracy	better than ± 5 ppm
Resolution	0.01 ppm
Mapping time	5 seconds (typical)
Humidity	non-condensing
Magnetic environment	0.2 Tesla

Fig 4.1

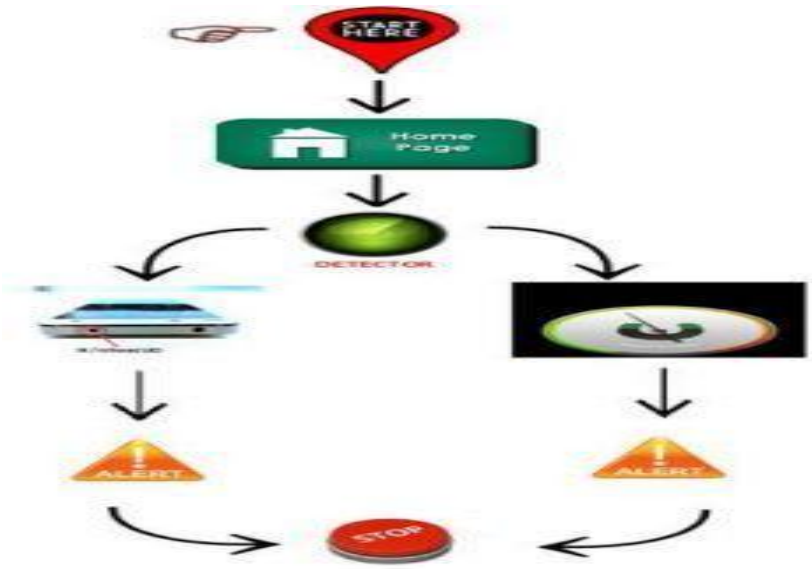

Fig 4.2

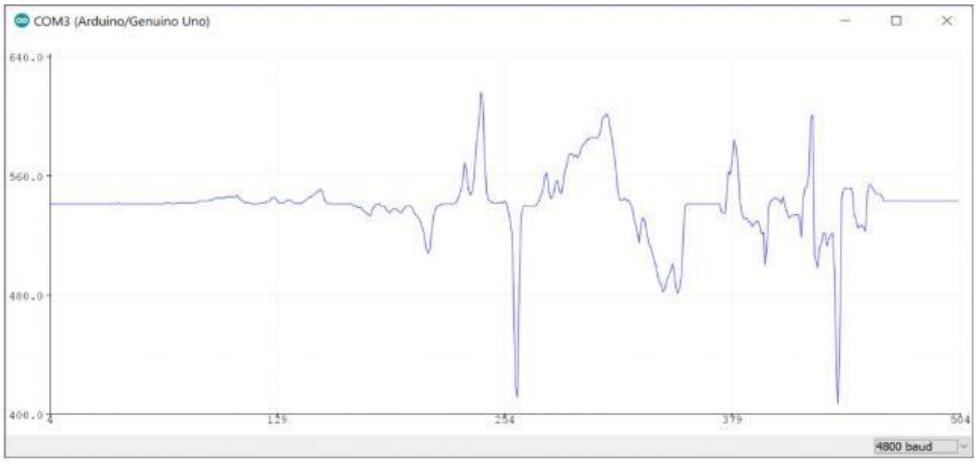

Fig 4.3

Online ISSN: 2456-883X

The virtual output of the magnetometer is captured in Figure 4.3.The magnetometer detect the magnetic difference in its surrounding. The virtual output is not necessary in the real time implementation of the product.

5. CONCLUSION

Detection of a hidden camera would detect spy cameras in trial rooms, theatres and many other public places where it is prohibited with an immediate report to the authorities after the detection. Manual checking of the presence of hidden cameras is almost impossible. This system is an efficient method for detecting cameras because no matter how small the cameras are, they can be easily detected around an area of 50m. In confidential meetings, even after the heavy checking of people, they manage to skip all the security and take cameras inside the room to record the conversations and use them for some illegal purposes. So our application will be a great tool that would help in detection of cameras in the restricted area.

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