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ANIMAL IDENTIFICATION ALERT SYSTEM FOR PASSENGERS

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Abstract – *This paper is intended to build an efficient module that can identify the animal interruption in the roads, where animal crossings occurs often. The main objective of this paper is to safeguard the human from animal attacks. This module uses raspberry-pi BCM2837 and helps in identifying the presence of animals and offers a warning. PIR sensor is used to sense the animal footprints. In addition to the sensor Digital image processing is used to map the image of animal captured by the camera. In-case of animal detection, alert signal is sent to the check-post through Internet of Things. LED and Buzzer are used for alerting the animal presence to the passengers on the road. GSM/ Wi-Fi module is interfaced with IoT system so that the passengers on road get the alert SMS.*

Key words: *BCM2837, PIR Sensors, Digital Image Processing, LED, Buzzer, Camera, GSM/ Wi-Fi module, IoT.*

1. INTRODUCTION

Now -a-days, animal interruption in the roadways of hill areas or frequent animal passing areas, is happening more. Due to this, the passengers who travel on those roads either face difficulties or get attacked by the animal. Another cause is that the vehicles make accidents on animal without knowing their presence. In order to safeguard the humans and animal, PIR sensor is placed on the both sides of the road. This sensor detects the animal by their footprints and gives notification through Raspberry pi. Digital image processing system is used to map the image captured by the cameras placed at that spot. If the animal is identified the raspberry pi turn ON the LED and the buzzer which is placed on the road certain distance from that spot. The IoT make an alert to check-post. GSM/Wi-Fi module is used to send SMS alert to passengers who registered their mobile number in the check-post. By this idea, both the lives of animal and human can be saved and prevent vehicle damage.

2. PROPOSED SYSTEM

In this paper, the PIR sensor to detect the animal's interruption in roads and also image processing is used to identify the animal. The presence of animal is intimated to the passengers who travel at that spot through the alert system. The raspberry-pi for the interface between the sensors and camera. IoT is used to send the alert system to the check-post. From there using GSM/Wi-Fi module, the alert SMS is sent to the passengers informing the presence of animals

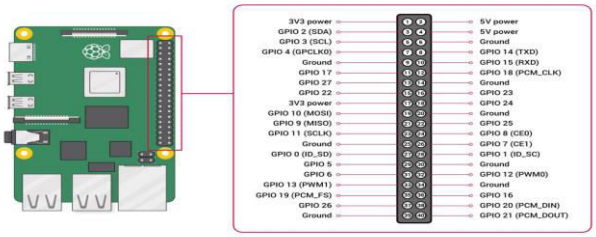

Fig.1: BCM2837 Pin Diagram 2.1

2.SYSTEM BLOCK DIAGRAM

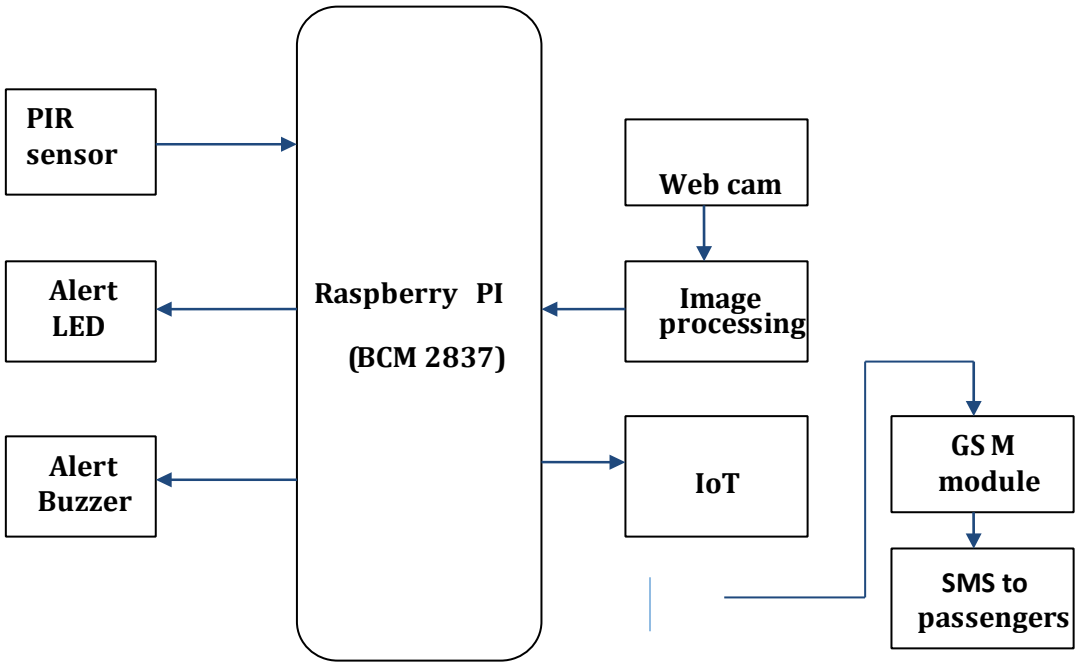

Fig.2: Block Architecture

3.METHODOLOGY

3.1 PIR SENSOR

It is used to detect whether an animal has moved in or out of the sensors range. They are often referred to as PIR, i.e "Passive Infrared", "Pyroelectric" or "IR motion" sensors. PIR's can detect levels of infrared radiation. The sensor in a motion detector is actually split into two halves. The reason for that is that it is looking to detect motion (change) not average IR levels. The two halves are wired up so that they cancel each other out. If one half sees more or less IR radiation than the other, the output will swing high or low.

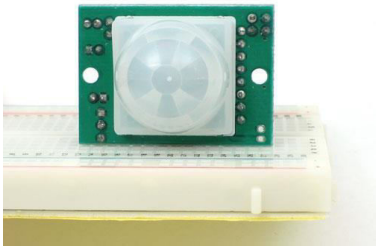

Fig-3: PIR Sensor

3.2 WEB CAMERA

A webcam image in real time through one computer network to another computer network. When the image is captured by the computer, the video stream may be saved, viewed or sent on to other networks via systems such as the internet, and

emailed as an attachment. When sent to a remote location, the video stream may be saved, viewed or on sent there. Unlike an IP camera (which connects using Ethernet or Wi-Fi), a webcam is generally connected by a USB cable, or similar cable, or built into computer hardware, such as laptops.

Fig.4: Web camera

3.3 LED

In electronics the basic LED circuit used to power a light-emitting diode (LED). It consists of up to four components connected in series: a voltage source, a current limiting resistor, a diode, and optionally a switch to open and close the circuit. The circuit of LED is shown in the Figure 3.7. The switch may be replaced with another component or circuit to form a continuity tester. Two diodes may be placed in parallel in the circuit. The connection of first diode should be from anode to cathode which illuminates the LED. The second diode may be used to protect the LED against reverse bias, which can damage the LED or it may be another LED which is illuminated when the polarity of the voltage source is reversed.

Fig.5 LED

3.4 BUZZER

A buzzer or beeper is a signaling or alerting device, typically used in automobiles, household appliances. It is most commonly consists of a number of switches or sensors connected to the circuit unit that predicts which button was pushed or pressed at the present time has lapsed. It usually illuminates a light on the appropriate button or control panel of the circuit and gives a warning sound in the form of a continuous or beeping sound. Primarily LED was based on an electro-mechanical system which was similar to an electric bell without a metal gong.

FIG.6 BUZZER

4.1 PHP LANGUAGE

PHP is a server-side scripting language designed only for web development and other related works. It is also used as a general-purpose programming language used for the web development. From 2013 PHP was installed on more than hundreds of websites and 2.1 million web servers. It was designed by Rasmus Lerdorf in 1994. The model reference implementation of PHP is now produced by the PHP group. While PHP originally stood for personal home page, which is a recursive acronym. PHP code is usually processed by a PHP interpreter used for web development. Which is usually implemented as a web server's native module? After the PHP code is interpreted and executed, the web server sends the output to its user, in the form of a part of the generated web page.

5. RESULT

The PIR sensor sense the animal footprints and the signal is made HIGH, once the signal is made HIGH the raspberry-pi make the LED and Buzzer turn ON. Simultaneously on other hand the camera detects the animal and the image is compared it with the sample images of database uploaded. The alert signal is passed to the control unit by using internet of Things. When the animals cross-over the prone areas then an alert SMS is sent to the passengers before certain distance from the animal's cross over area. This helps the passengers to safeguard themselves from the risks.

6. REFERENCES

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