

Fruit Trees Protection using IoT

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ABSTRACT

Abstract: Fruits are very important for human beings. They are not only delicious but also have many nutrients which are necessary for human health. India is second largest producer of fruits in the world. Many farmers have started fruit trees plantation. Fruit production has been increased tremendously. Farmers are using lot of science from plantation of trees to fruit production. But Once fruits are ready then question of their safety arises. This problem is less observed in rural area but in urban area farmer is more concerned about the safety of their fruits. So in this paper design for Anti theft system for fruits tress has been proposed. Raspberry pi has been used along with PIR Sensors.

Keyword Fruit Tree Protection, IOT, Raspberry Pi, PIR sensors

1. INTRODUCTION

Fruits are very important for human beings. They are not only delicious but also have many nutrients which are necessary for human health. India is second largest producer of fruits in the world. Many farmers have started fruit trees plantation. Fruit production has been increased tremendously. Farmers are using lot of science from plantation of trees to fruit production. But Once fruits are ready then question of their safety arises. This problem is less observed in rural area but in urban area farmer is more concerned about the safety of their fruits. So in this paper design for Anti theft system for fruits tress has been proposed. Raspberry pi has been used along with PIR Sensors.

2. RELATED WORK

Today Raspberry Pi is used for developing large number of real time application. play. In [1], an Intelligent mirror is developed. It takes voice commands and it is built with Raspberry Pi microcontroller, LED monitor and acrylic mirror, which displays the weather, time, and location information on the screen, is proposed.

TheGardenPi [2] monitoring and watering the garden automatically. The system had watering on the basis of weather forecast and timer. System looks up the forecast using the Forecast.io API and watered using Raspberry Pi by installing Raspbian, configuration with Wi-Fi access.

Renuka Chuimurkar and Vijay Bagdi conducted study on "Smart Surveillance Security & Monitoring System Using Raspberry PI and PIR Sensor" [3]. It discusses the design and implementation of monitoring systems using Raspberry Pi and PIR Sensors for mobile device.

3. SYSTEM DESIGN

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As shown in Fig.1 the Proposed system mainly consist of Raspberry Pi 4 along with GSM-900 and PIR sensor. Raspberry Pi 4 is newest, fastest and easiest to use. It is latest version of low cost Raspberry Pi Computer. At least

3.0 Amps power supply is required for Raspberry Pi 4. A MicroSD card is required to store the files and operating system. SD cards for Raspberry Pi is generally supplied with Raspbian operating system. SD card having Raspbian should be inserted into microSD card slot on the underside of your Raspberry Pi.

PIR sensors are used to sense the motion. PIR stands for Passive Infrared. They can detect whether a human has moved in or out of the sensors range. That means when human or animal body will get in the range of the sensor it will detect movement because human or animal body emits heat energy in form of infrared radiations. However PIR sensor does not give any idea about number of peoples around or their closeness to the sensor. They measures infrared light from objects which are within its range. So it can detect motion based on changes in infrared light in the environment. PIR sensors have three terminals Vcc, OUT and GND. Vcc terminal of sensors is connected to +5V on Raspberry Pi. Connect OUT pin to one of the GPIO pin of Raspberry Pi and connect GND to respective GND pin on Raspberry Pi. OUT pin gives high logic level if object is detected. We can adjust sensor sensitivity and delay time using two potentiometers located at the bottom of the sensor board.

PIR sensors can be mounted along the sides of land containing fruit trees. These PIR sensors are connected to the Raspberry Pi 4. Whenever PIR sensors detects motion, it is indicated to the Raspberry Pi. Then Programmed Raspberry Pi will activate GSM modem and SMS will be send to predefined numbers which are stored in contact list.

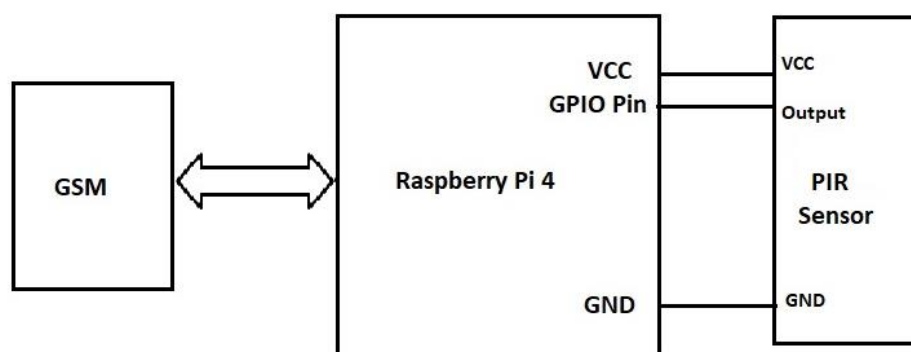


Fig -1: Interfacing Raspberry Pi with PIR sensor and GSM

4. CONCLUSIONS

In this paper we have proposed design for Fruit trees protection using the IOT. The proposed design consist of Raspberry Pi, PIR sensor for motion detection and GSM. The proposed design once implemented will definitely reduce concern of farmers regarding safety of Fruit tress.

5. REFERENCES

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