International Journal of Enhanced Research in Science, Technology & Engineering
ISSN: 2319-7463, Vol. 11 Issue 7, July-2022, Impact Factor: 7.957

Implementation of a Motion Detection System with Led Digital Display Board

Ajmi Noushad[1], Arathy S[1], Ardra Selvan[1], Jannath S[1], Shankar J[2]

[1,2] Department of Electronics and Communication, UKF College of Engineering and Technology, Parippally Kollam

ABSTRACT

Motion detection plays an important role in security and safety.Developing Countries are now employed public motion surveillance as a primary tool to monitor population movements and to prevent crimes etc. Nowadays, intrusions are becoming popular. Intrusions may be at home, financial organizations, public places etc. For the well-being of our society and to reduce these intrusions, we came across with CCTV camera. Even CCTV camera is also having drawbacks like privacy invasion, IP address conflict stolen by the human etc. The proposed system is to develop a Camaflouge system to capture image evidence by using raspberry pi and IoT. The camera is hidden inside an LED digital display so as to avoid an existing problem that the cameras are stolen in remote area. Ultimately it is a Camaflouge system look like a display board for public by providing information at the same time.

INTRODUCTION

In modern times, there is need of continuous video surveillance to secure our valuables CCTV cameras and equipment used to be relatively expensive and require human power to monitor the surveillance footage. Now a days, surveillance system has become more purposeful in common life. To overcome the limitations facing by CCTV cameras, raspberry pi 3 model B+is used to capture the footages reducing the size and price. HDMI port in the raspberry pi helps to connect projectors, monitors etc. GPIO pins which are used to interface and control camera, sensor, switches and another device. Motion detection can be detected by PIR (Passive Infrared) sensor. Many motion detectors use PIR sensors, which permanently measures infrared light and notices whenever something in the infrared spectrum changes. This is all you need to detect motion, because nearly every object emits infrared light.The main objective of our project is surveillance in which the camera is camaflouged by the LED display board.Our project consists of two parts.

- Camera for surveillance
- An LED display for passing information

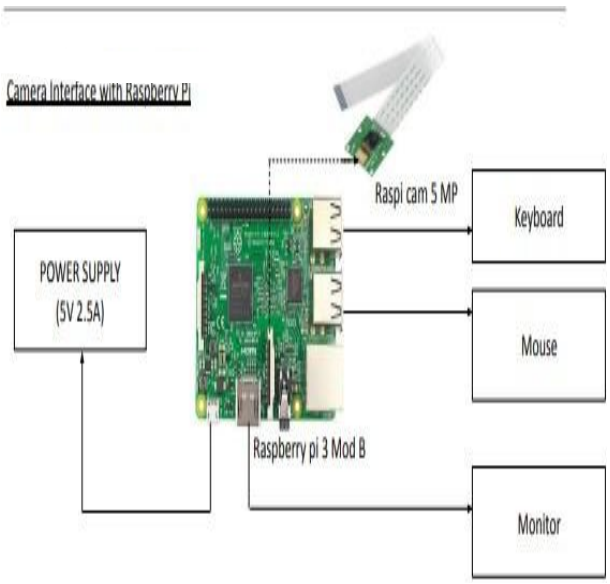


Figure 1: Block diagram of raspicam interfaced with Raspberry pi 3

WORKING

Raspi cam module having 5MP resolution is placed inside the camera serial interface in the Raspberry pi 3 model B. TheMonitor connected to the HDMI ports. Mouse and Keyboards are connected to the USB ports in the Raspberry pi. The Raspbian OS is installed in a SD card and it is place inside the SD card port of the Raspberry pi. A power supply of 5V 2.5A is given to the Raspberry pi.

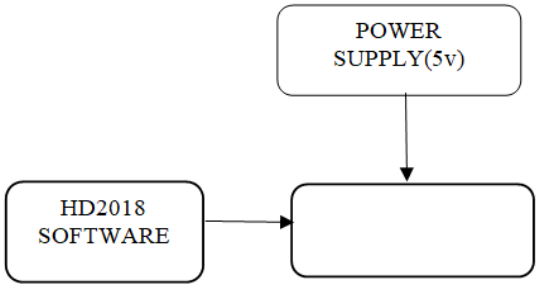
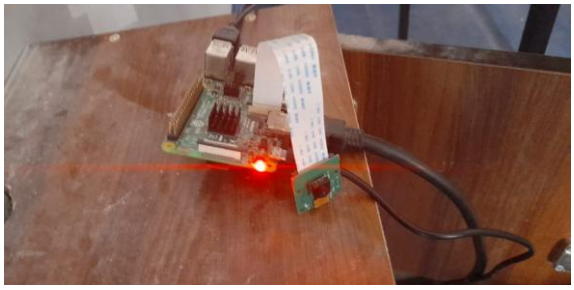


Figure 2: Block diagram of LED Display

WORKING

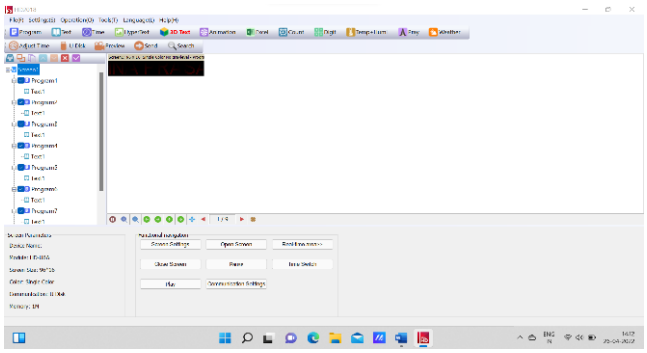
The LED panel used is P10 LED module. A software called HD2018 is installed in our PC.The card model used for LED panel is HD-U6A.The data to be displayed is given programmed from the software and copied to a USB and it is inserted into the LED panel. A three LED panels having 16x32 size is assembled to produce one LED Display board. A power supply of 5V 70A output is given to the LED board. The power supply used here step down the 230v supply to 5v and makes theoutput current high inorder for the working of the LED Display.

Experimental results of working prototype



Camera interfacing set up

Image captured



Software Output

CONCLUSION

In the end we conclude that every person needs to be in a better and secure world. To provide safetyand security we are implementing affordable hardware components, in effect the system becomes reliable and cost effective. It is a smart flexible system that replaces a lot of conventional type of theft detection systems nowadays.This system mainly provides an efficient method for surveillance purpose and is aimed to be highly beneficial for any person or any organization.

REFERENCES

[1]. Ajmi Noushad, Ardra Selvan, Arathy S, Jannath S, “Review on Intrusion Detection System”, IJERSTE, Impact Factor: 7.957, volume11, Issue 4, Apr.2022.
[2]. Saurabh Singh rajawat, Subhranil som, Ajay Rana, "IoT based Theft detection usingraspberry pi ",2020 8th International Conference on reliability and Infocom technologies
[3]. Chetan Dhule, Rahul Agrawal, Dr. Sanjay Dorle, Dr. Bhushan Vidhale,” Study of Design of IoT based Digital Board for Real-Time Data Delivery on National Highway" Sixth International Conference on Inventive Computation Technologies [ICICT 2021]
[4]. Gurusha Lulla, Abhinav Kumar, Govind Pole, Gopal Deshmukh, IoT based Smart Security and Surveillance System”,2021 International Conference on Emerging Smart Computing and Informatics (ESCI)
[5]. Priya B. Patel, Viraj Choksi, Swapna Jadhav, M.B potder, "Smart Motion Detection System using Raspberry", International Journal of Applied Information Systems Foundation of Computer Science FCS, New York, USA Volume 10 – issue 5, February 2016
[6]. Q. I. Sarhan,” Systematic Survey on Smart Home Safety and Security Systems Using the Arduino Platform,” in IEEE Access, volume 8,2020
[7]. M. Sahu and R. Dash,” Study on Face Recognition Techniques,” 2020 International Conference on Communication and Signal Processing (ICCSP), Chennai, India, 2020
[8]. Peng-Wen Chen, Yung-Hui Chen and Yi-Hsien Wu,” Pushing the Digital Notice Board toward Ubiquitous Based on the Concept of the Internet of Everything “, Twelfth International Conference on Ubi-Media Computing (Ubi-Media), 2019
[9]. Mr. Ramchandra K. Gaurav, Mr. Rohit Jagtap, “Wireless Digital Notice Board Using GSM Technology”, International Research Journal of Engineering and Technology (IRJET), 09, Dec-2015