Low Cost Multipurpose Camera

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Abstract:- today we are facing many problems with shortage of electricity, so we should develop new systems which use less electricity. Presently we have many security system which consumes electricity in large amount, also they are costly. To overcome this problem we developed a low cost multipurpose camera. With the invention of Raspberry pi, it's easy to develop low cost multi –Purpose security camera. While compared to ordinary system our system has many advantages, this system has reduced power consumption, less memory is used, and any system can be changed into our system.
**Keywords**—Multipurpose camera, raspberry pi, PIR sensor.

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1. INTRODUCTION

Low cost multipurpose camera is the practical and economical solution to the problems which we are facing with the existing security camera. Building a security camera with low cost and less consumption of electricity is a challenging problem. To solve this problem we developed Low cost multi-purpose camera. This system operates with less consumption of electricity, it can be used in mainly in lockers and highly secured areas .The main idea of this project is to control the camera whenever an alert is needed and also reducing memory space by recording or capturing image whenever necessary.

II. BLOCKDIAGRAM AND EXPLANATION

Mainly the block diagram consist of raspberry pi, PIR sensor, laser source, LDR & camera .the input to raspberry pi are from PIR sensor and laser module. According to the each input raspberry pi produces a trigger which will make the camera on. The image output from the camera is been stored in the SD card. SD card is embedded with the raspberry pi itself. PIR sensor will detect the motion and output becomes high and that is given to raspberry pi also the change in resistance value produces an output voltage by the LDR and this is given as the input to the raspberry.
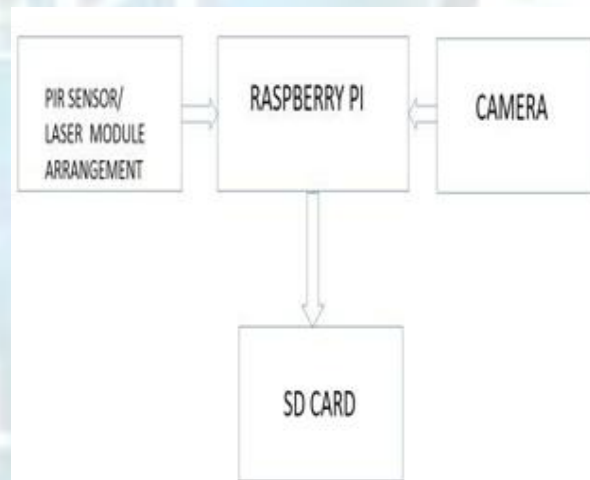
Camera triggering will happens whenever an input is given to the raspberry pi, correspondingly the image is been taken and which is stored in the SD card. The camera and SD card can be chosen according to the user.

III. PRINCIPLE AND OPERATION

The LDR, laser source and PIR sensor are connected to the GPIO pins of the raspberry pi. The camera is been directly connected to the USB port of the raspberry pi and the SD card is directly embedded in raspberry pi.Low cost multipurpose camera, in this mainly the camera get triggered with the help of raspberry pi. Mainly we have two inputs to raspberry pi, the inputs are from the output of PIR sensor and the output from the LDR. Raspberry pi is programmed such a way that the whenever the

output from the PIR sensor and LDR is high then camera get triggered. Camera takes image whenever it get triggered, The laser and the LDR source arrangement are kept twice one after the other .mainly this arrangement is done to detect movement is inside or outside .If someone is entering other than through the entry we have PIR sensor for the detection .image taken by the camera contains the following information such as date, time and movement is inside or outside. The images taken are directly stored in the SD card which is being already embedded in the raspberry pi. The size of the SD card can be changed according to the user.

The condition which has been given in the programme for the capturing of the image are firstly if the first LDR is crossed then image will be taken as laser blocked ,secondly if the second LDR is crossed then image is taken as movement inside .also the image is taken by the PIR sensor then image will be taken motion. Again for the outside movement also the same condition mentioned above is used .The need for keeping two LDR is to find out the inside or outside movement.

IV. ADVANTAGES OF THE SYSTEM

Low cost multipurpose security camera has many advantages while compared to the ordinary security system among them the main advantage is that the system reduces power up to a great extent. In present scenario it's very important for developing system which uses less power so the power consumption can be considered as one of the most important advantage also the system is flexible in the sense any present security system can be affectively changed into this system, another advantage is the easy data handling capacity the various information's regarding the security purpose can be easily fetched out .memory space used by the system is also very less and the images can be easily stored.

It can be used as locker security When someone enters into the highly secured area the ordinary CCTV will take moving picture continuously Even after it we cannot receive triggered information will Not get spontaneously without continuous monitoring .In this we could get information in like an sms or e mail No one can escape from this because we are giving double security ie : the IR will disturb then the camera get triggered and if someone entered is not in the correct way Then PIR will trigger the camera .so no one can escape from this.

V.FUTURE SCOPE OF THE SYSTEM

In future the proposed system can be made into a

product. Additional features which can be added are, the image taken by the camera can directly send to persons through e –mail and also alert messages can be send with the help of gsm .with the help of image processing the system can be modified to a great extent .pre-loaded image in the processor if is been matched with the original image then the processor will not send the image otherwise the image will be send. If the mismatch of the image occurs then additional security can be added. All the above features can be easily given to the processor and finally a moulding is to be done for making the proposed system as product. The manufacturing cost of the product can be reduced if proper mounding is done.

VI. CONCLUSIONS

This project is cost effective while compared to the ordinary security system, it has more features than ordinary security system. On further enhancement it can made as product which is use full for every security purpose. Making into a product only makes the system a complete one. In the present scenario the need for a product from the present project is needed, it will help in saving of power up to great extent .presently the shortage for electricity is increasing so in future if the existing security system if modified to the proposed project then it will bring a new cost effective multipurpose security camera which is very much useful for the society and plays an important role in reducing power.

REFERENCES

[1] Gustavo A. Pelaez C., "Driver Monitoring Based On Low Cost 3-D Sensors," IEEE Trans. Intell. Transp. Syst., vol. 15, no. 4, pp. 1855-1860, Aug. 2014.

[2] T. Wakita et al., "Driver identification using driving behavior signals," in Proc. IEEE Intell. Transp. Syst., 2005, pp. 396-401.

[3] C. Papadelis et al., "Monitoring sleepiness on-board logical recordings for preventing sleep-deprived traffic accidents," Clin. Neurophysiol., vol. 118, no. 9, pp. 1906-1922, Sep. 2007.

[4] C. Papadelis et al., "Monitoring driver's sleepiness on-board for preventing road accidents," Stud. Health Technol. Inf., vol. 150, pp. 485-489, 2009.

[5] G Fanelli, T. Weise, J. Gall, and L. Van Gool, "Real time head pose estimation from consumer depth

cameras," in Proc. Int. Conf. Pattern Recog., 2011, pp. 101-110.

[6] J. Sherrah, S. Gong, and E. J. Ong, "Face distributions in similarity space under varying head pose," Image Vis. Comput., vol. 19, no. 12, pp. 807-819, Oct. 2001.

 [7] P. Viola and M. J. Jones, "Robust real-time face detection," Int. J. Comput. Vis., vol. 57, no. 2, pp. 137-154, May 2004.