Motion Alert Camera

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Abstract: *Security guards patrol and monitor activity at a location. As a advancement of guards, security camera has introduced in the year 1960 and made popular in 70's. The disadvantage in these CCTV is its mandatory that someone should sit before the security system and monitor this will be suitable for some places but in some case its unwanted to sit all the time but there is no other way, to overcome this we could use our motion alert camera. Here, the camera detects by itself if someone enters the room where the alert camera is placed it takes a pic of that particular person who enters into your room and sends a email to you so that we could be alert and take a necessary action out of it. This is very much useful in places like ATM lockers, restricted areas where only the concerned employees must enter. Here it's a motion triggered image capturing system which will be saved in a micro sd card which will not only captures but also sends you a mail of a captured image.*

Keywords: PIR, SMTP, GPIO, Serial Monitor, ESP32 Mail Client, VCC.

I. INTRODUCTION

It's been more than 200,000 years since modern forms of humans evolved. As the year passes not only humans evolve also the technologies and machines evolves. Humans living standard has increased due to technologies. Speaking about technology the IOT technology is one of the major and upcoming technology in world. Smart world technology is one of the most important applications of IOT. It enhances the existing lifestyle and it reduces the efforts of humans. By implementation of technology and as an enhancement of smart world technology we have introduced a concept known as MOTION ALERT SYSTEM.

II. RELATED WORKS:

HAIDI IBRAHIM 1 (Senior Member, IEEE), AND SOO SIANG TEOH1 , (Senior Member, IEEE)- A multi-camera system combines features from different cameras to exploit a scene of an event to increase the output image quality. The combination of two or more cameras requires prior settings in terms of calibration and architecture. Therefore, this paper surveys the available literature in terms of multi-camera systems' physical arrangements, calibrations, algorithms, and their advantages and disadvantages. We also survey the recent developments and advancements in four areas of multi-camera system applications, which are surveillance, sports, education, and mobile phones. In the surveillance system, the combination of multiple heterogeneous cameras and the discovery of Pan-Tilt-Zoom (PTZ) and smart cameras have brought tremendous achievements in the area of multi-camera control and coordination. Different approaches have been proposed to facilitate effective collaboration and monitoring among the camera network. Furthermore, the application of multi-cameras in sports has made the games more interesting in the aspect of analyses and transparency. The application of the multi-camera system in education has taken education beyond the four walls of the class. The method of teaching, student attendance enrollment, determination of students' attention, teacher and student assessment can now be determined with ease, and all forms of proxy and manipulation in education can be reduced by using a multi-camera system. Besides, the number of cameras featuring on smartphones is gaining noticeable recognition. However, most of these cameras serve different purposes, from zooming, telephoto, and wider Field of View (FOV). Therefore, future smartphones should be expecting more cameras or the development would be in a different direction.[1]

Prof.Akshay Agrawal, Mr.Mahesh Kshirsagar, Mr.Vivek Yadav, Miss.Rupali Ghodvinde. In the proposed framework an astoundingly financially sharp and outrageous discernment structure will be made which will apparently perceive human nearness and trigger the Camera Module ,which will begin recording the video and additional it to an outer drive comparably as send a notice on the android application concerning the advancement and in the mean time the

client will all around likely watch the live stream of the entire scenario.[5] It can be utilized at Homes also as at the fields by the ranchers to recognize any kind of unapproved Human richness. PIR (Passive Infra Red) improvement sensor as the key sensor for advancement ID, GSM module for sending SMS and ringer for alarm. For programming framework utilizing Arduino and GSM module. The outcome fulfills, the advancement sensor read an information well and with two or three minutes it sends a notice to versatile applications.[2]

Poojari Manasa, K.Sri Harsha, Deepak D M Assistant professor, Naveen Nichal O -This paper we suggest a robot patrolling security that uses night vision camera to protect any premises. The robotic vehicle is traveling at different intervals and is fitted with camera and sound sensors for the night vision. It uses a predefined line to patrol along its route. It stops at different points and if sound is heard it travels to next points. To patrol the allocated field, system uses the following IR-based path system. It monitors every area using 360degree rotating HD camera to detect any intrusion. It has the capability of tracking sound at the premises. Any sound after the firm is closed and on its predefined course it begins moving towards the sound. It then scans the area using its camera to recognize human face found. It records and begins to relay photographs of the situation immediately after identification of the sound or human face. This is where we use IOT Local Area Network (LAN) to receive transmitted images and display them with warning sounds to the user. We are therefore proposing a fully autonomous security robot that works constantly and patrols wide areas alone to protect the facility.[6]

III. MATERIALS AND METHODS

HARDWARE

- esp32 camera
- wifi module
- TTL programmer
- Breadboard
- Jumper wires
- 5v usb power
- Mini usb cable
- 1k ohm resistor
- 10k ohm resistor
- Bc 547 Transistor
- PIR motion sensor
- SD card

SOFTWARE:

- ARDUNIO IDE

METHOD:

1. Once connected power up the board Compile the code and press the reset button.
2. Open the serial monitor where you will find waiting for download and then upload the code
3. Build the circuit using a breadboard and test to make sure everything works as expected
4. Now, lets build the second part of the project here the image must be sent to a mail
5. Open up the library manager and type in "ESP32 Mail Client" , Install the library .
6. To sent mail we need to add the network name and password as the board needs to connect to the WIFI network we also need to provide an email address along with the password for the board to send the email.
7. Creating a new account is recommended Once the account is created, you need to enable less secure apps
8. We have to create a two mail id one for the sender and other for recipient, recipient can be as much as we want
9. Now if any obstacle is sensed by the PIR it sends 3.3v as an output which will trigger the esp32 cam to take the image now that image is stored to an SD card and sends the mail to the provided mail id

We construct a motion-triggered picture capture system that also sends an email with the image as an attachment, building on earlier ESP32-CAM experiments. The ESP32- CAM board is used in this project, along with a PIR sensor module based on the AM312 sensor. When motion is detected, the board goes into sleep mode for the most part and wakes up to take an image. In part 1, we add the motion detection functionality to the previous time-lapse drawing. In part 2, we update the drawing and add the email feature.

Step 1: Gather the Electronics
The camera module and microSD card port required for this sketch are already present on the ESP32-CAM board. A microSD card, a PIR sensor module (based on the AM312 sensor), a general-purpose NPN transistor (BC547, BC548, BC549, or 2N3904), a microUSB breakout board, a 10K Ohm and 1K Ohm resistor, and a USB to serial converter to upload the sketch are also required.

Step 2: Upload the Sketch for Part 1.
Because the ESP32-CAM board lacks an integrated USB connector, you must upload the sketch using an external USB to serial converter. You can use the above wire connections, but make sure the USB to serial converter is connected in 3.3V mode. It's best to power the board with an external 5V supply, especially if you're using an FTDI breakout board. A basic USB breakout board will suffice for the external 5V supply. It has been reported that powering the board directly from the CP2102 breakout board works well, so you might want to try that first. If needed, the board also features a 3.3V power pin. To set the board in download mode, you'll need the jumper. Power up the board, open a serial terminal (Tools->Serial Monitor) with a baud rate of 115,200, then click the reset button once everything is connected. The output should look like the one in the image, indicating that everything is working properly.

Step 3: Connect the Circuit and Test
Build the circuit using a breadboard and test to make sure everything works as expected.

Step 4: Install the Mail Client Library
Open up the library manager and type in "ESP32 Mail Client". Install the library that shows up as we need this for the sketch.
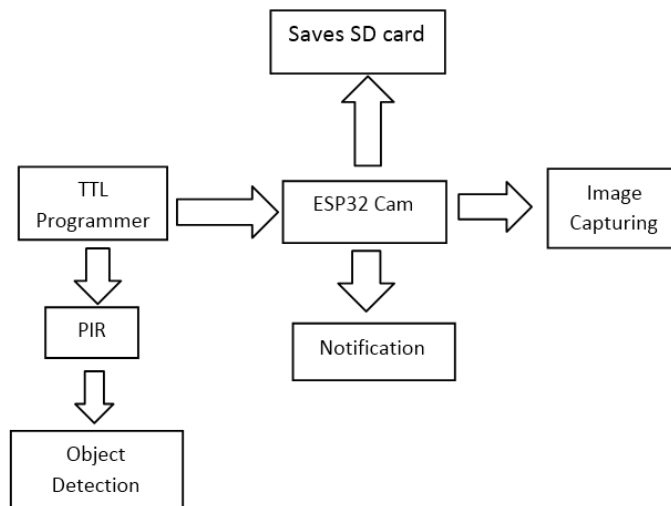

FIGURE 3.1 SYSTEM WORKFLOW

Step 5: Upload the Sketch for Part 2
Open it up using the Arduino IDE and then update it with your details. Because the board needs to connect to the WiFI network, you'll need to enter the network name and password. For the board to send the email, you'll also need to

supply an email address and a password. I'd suggest making a new GMAIL account. You must also indicate the receiver, and you may have many recipients if necessary. To discover more, watch the video. After you've completed all of this, upload the drawing to the board and turn it on. I recommend attaching the serial terminal and monitoring the output because this will alert you to any issues. If all goes according to plan, the board should take a picture, preserve it, and email it to you.

IV. DISCUSSION

The enhancement of the project is we could embed the machine learning by feeding the photos that is if the camera is placed in the bank locker area except the manager and the cashier no one should enter into that room so we should feed multiple photos of them in different angle so that photo will be recognized it does not take the pic of them and takes the picture of unknow faces so that we could make it more useful. If the person enters with full face mask illegally then the burglar alarm will ring efficiency is reduced. Hence, from this project security is maintained and humans work

V. CONCLUSION

This concludes our project "MOTION ALERT CAMERA." This project demonstrates how to detect motion. This project can be used at home or in the office. It is also cost-effective. As a result of this endeavour, our circuit can be employed as a security device as well as a protection device. It can act as an anti-theft device. It is incredibly cost-effective and simple to use. Motion detectors detect any type of movement and can be used for a variety of purposes. Motion detectors are versatile and useful home security equipment. Motion detectors have the advantage of being portable, transportable, and simple to install, and they don't require any monthly maintenance.
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