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Automated Gun Control

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ABSTRACT: The aim of this work is to design the automated security system in order to detect, track and destroy the target for surveillance operations. The system can be operated in two modes, in which the target can be tracked automatically by using microcontroller based system. On other hand, the system can also be controlled manually in which the user has right to select the target and performs shooting if necessary. The image processing algorithms are implemented in Paython.

The process starts by processing the video signal on computer by using the video camera, then the target is selected which can be tracked further by using different image processing techniques. After the selection of target, the micro-controller unit takes the decision to shoot any unauthorized person or activity within its range.

KEYWORDS: Raspberry pi 3, Camera, Relay, Battery, Adapter, LCD, Buzzer.

I. INTRODUCTION

In these days security is the major issue for all over the world. Security is very important in order to protect vulnerable and valuable assets such as a person, dwelling, community and nation from any harm. International security issues are also very important, especially border and coast security to any country. The people of national security agencies, maritime security organization, military forces and other forces sacrifice their lives to protect their country people. The lives of forces are also very precious like other lives. So by using advance technologies, the forces can protect their nation superiorly with minimum life losses. In this modern era, computer base security equipment's are very popular among forces because they are more advance and safe for themselves.

For example drone technology the "unmanned aerial vehicle" which is controlled automatically by computer is very popular these days. In this technology, the target is selected and hit by using computer based algorithms including image processing techniques. Real time image and video processing for object detection and tracking has many important applications in the field of computer vision(B. Coifman et al., 1998), such as video surveillance, military purposes etc.

The availability of high quality and inexpensive video cameras and the increasing need for automated video analysis has generated a great deal of interest in the areas of motion detection, object tracking and object targeted(A. Yilmaz et al., 2006) Thus on a very high possible to identify three key steps in video analysis: detection of interesting moving objects, tracking of the detected objects from frame to frame, and analysis of the object tracks to recognize their behavior and targeted object accordingly.

Another existing example of automatically aimed weapon is the sentry gun which aims and fires the targets which is selected by its sensors Another existing application is "Air Defense Gun" which is mounted on the device at the top of the army tank which automatically tracks and shoots low flying a Object detection with a camera is a revolution in image processing which itself has applications in various civilian and military fields. These applications include air traffic control, navigation system, error tolerant systems, judgment problems, inspection, target analyze, command and control, sensor management and weapon assistance.

II. PROPOSED SYSTEM

Image Subtraction:

Image subtraction is the process where the numerical values for individual pixels from two images are subtracted from one another, and the resulting values are used to construct a new image. The resulting image is analogous to a map of



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the differences between the two pictures. In a Search and Rescue context, this could feasibly used to determine the difference between aerial photographs over time, and locate a subject that has moved or caused disturbance. This is practically difficult for a variety of reasons, but other applications are easier to implement.

For man tracking, image subtraction can be useful for highlighting footprints in training photographs of footprints. Taking before and after pictures in this instance is fairly easy, and the use of a tripod virtually eliminates any image alignment problems. The image below shows a fairly easy to see footprint in a desert wash. A trained eye can see the heel on the left and the toe on the right, but this is very difficult for most without formal tracking training.

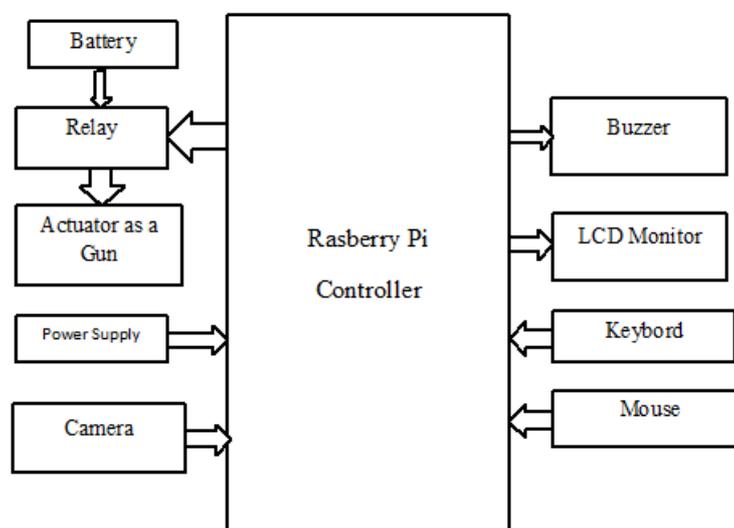


Fig. 1: Block diagram of Proposed System

2.1 Elements of block diagram are as follows:

1 Raspberry Pi 3:

The Raspberry Pi 2 uses a 32-bit 900 MHz quad-core ARM Cortex-A7 processor. The Broadcom BCM2835 SoC used in the first generation Raspberry Pi is somewhat equivalent to the chip used in first modern generation smartphones[clarification needed] (its CPU is an older ARMv6 architecture),[24] which includes a 700 MHz ARM1176JZF-S processor, VideoCoreIV graphics processing unit (GPU), and RAM. It has a level 1 (L1) cache of 16 KB and a level 2 (L2) caches of 128 KB. The level 2 cache is used primarily by the GPU. The SoC is stacked underneath the RAM chip, so only its edge is visible.

The earlier V1.1 model of the Raspberry Pi 2 used a Broadcom BCM2836 SoC with a 900 MHz 32-bit quad-core ARM Cortex-A7 processor, with 256 KB shared L2 cache. The Raspberry Pi 2 V1.2 was upgraded to a Broadcom BCM2837 SoC with a 1.2 GHz 64-bit quad-core ARM Cortex-A53 processor, the same SoC which is used on the Raspberry Pi 3, but under clocked (by default) to the same 900 MHz CPU clock speed as the V1.1. The BCM2836 SoC is no longer in production (as of late 2016).

The Raspberry Pi 3+ uses a Broadcom BCM2837B0 SoC with a 1.4 GHz 64-bit quad-core ARM Cortex-A53 processor, with 512 KB shared L2 cache.

2 Relay:

A relay is an electrically operated switch. Current flowing through the coil of the relay creates a magnetic field which attracts a lever and changes the switch contacts. The coil current can be on or off so relays have two switch positions and they are double throw (changeover) switches. The relay's switch connections are usually labeled COM (POLE), NC and NO

3 solenoid:

A solenoid valve, otherwise known as an electrically-operated valve is an automatic valve which serves the purpose of removing the need for an engineer to operate a valve manually. Solenoids operate using an electromagnetic solenoid coil to change the state of a valve from open to closed, or vice-versa. If the solenoid valve is 'normally closed', when the coil is energized, the valve gets lifted open by the electromagnetic force produced by the coil. There are 3 main different technologies; direct acting, In-direct acting and Forced-lift piston type.



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4 Power Supply:

There are many types of power supply. Most are designed to convert high voltage AC mains electricity to a suitable DC voltage supply for electronic circuits and other devices. A power supply can be broken down into a series of blocks, each of which performs a particular function.

III. FLOWCHART

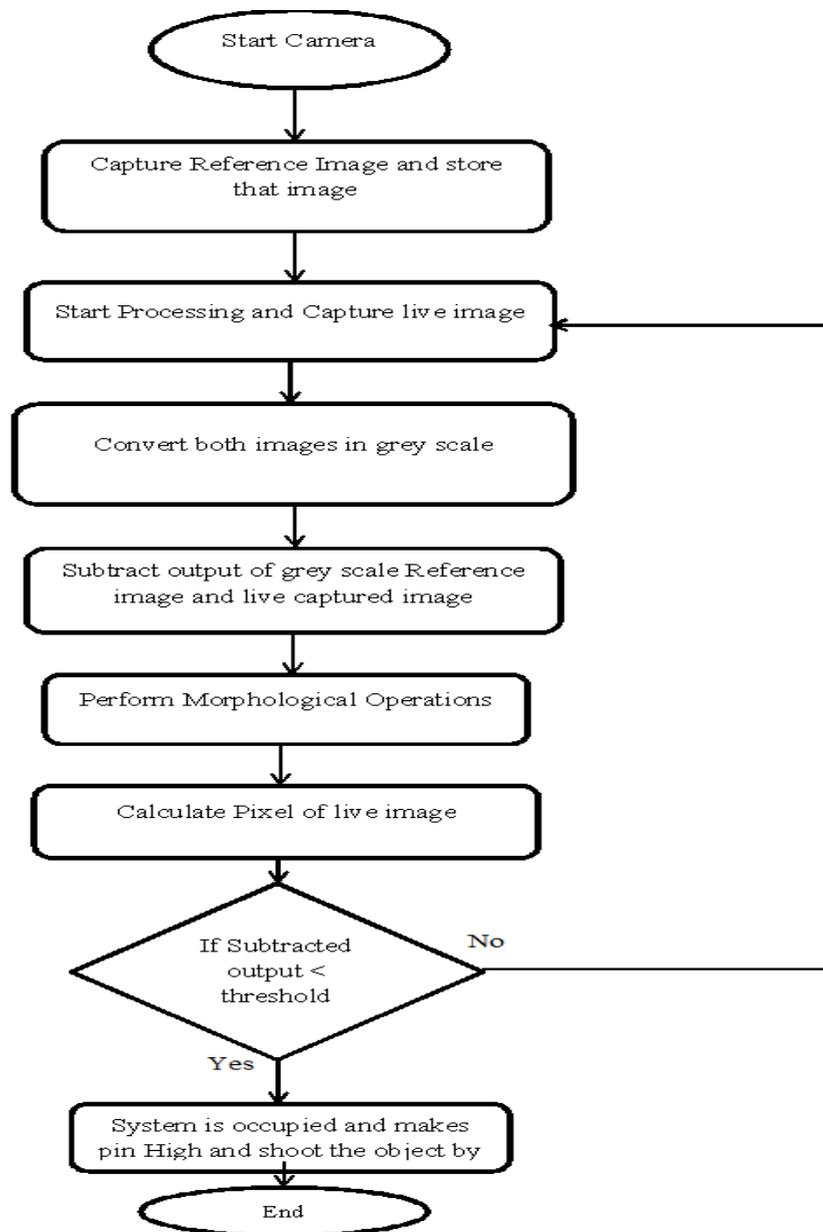


Fig. 2: Flowchart of system



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IV. RESULT

The result of this paper provides advanced technology to do some good towards the nation and for our Indian soldiers that are working day and night just to protect us from hazardous situation which is planned by terrorist. The paper deals with all kind of measures to ensure proper safety by detecting the obstacle efficiently and alarming the soldier this paper also considers the situation in which the terrorist may use underground path to enter by breaking the security, since no person can detect the underground activities without use of proper sensor and most probably terrorist are given training to enter inside the country by this way, hence this major task can be easily solved by the proposed system. The proposed system will act as an additional boundary layer which will help the soldier to plan more efficiently and aim at exact Point.

V. ADVANTAGES

- Reduce soldiers efforts
- Can be use in highly secured area
- Prevents the sudden attack from enemy & gives protection to our soldiers

VI. APPLICATIONS

This project is mainly design for securing our countries boundaries and with the help of this project we can reduce the soldiers effort and this project deals with all kind of measures to ensure proper safety by detecting the obstacle efficiently and alarming the soldier this paper also considers the situation in which the terrorist may use underground path to enter by breaking the security, since no person can detect the underground activities without use of proper sensor and most probably terrorist are given training to enter inside the country by this way, hence this major task can be easily solved by the proposed system.

VII. CONCLUSION

A serious problem that has arisen in this century is attacks and smuggling. Due to improper and less security near border area. It is a major challenge on our part to project to detect these smugglers, intruders, terrorists and other illegal activities breaking the security. Since the border area is so large that effective patrolling is not possible and it requires a very large amount of manpower, there has to be some kind of security system which can effectively provide more security. A border security system would cease all kind of illegal movements near the border and help BSF in controlling these activities in a better and more precise way.

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