Journal of Contemporary Issues in Business and Government Vol. 27, No. 3,2021
https://cibg.org.au/

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2021.27.03.225

CAMOUFLAGE TECHNIQUE WIRELESS MULTIFUNCTIONAL ARMY ROBOT

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ABSTRACT : Various defense charges are being created today by adopting primitive security to protect the border from intruders. The most important goal of our organization is to blend in, including some extra parameters such as the Wi-Fi component for original-time knowledge administered by the camera on the screen video cassette and the PIR detector to track intruders. The main destination of this project is to change a virtual environment used to detect suspicious and specific places for the user without loss of human lives. The general method of the anti-personal mine detection and identification.

Index Terms—Camouflage techniques, Raspberry OS, HAAR cascade classifier, OpenCV, H-bridge.

I.INTRODUCTION

The robot is an automatic mechanical device that often resembles a human or animal being. Robots have replaced humans in the performing arts with repetitive and dangerous tasks. The main objective of the document is to implement a camouflage technology based primarily on a wireless multifunctional military robot that can be controlled via smart phone via Wi-Fi. The army robot is a self-contained robot consisting of a wireless camera that can be used as a spy. This army robot is very cheap compared to soldiers. The main purpose of the mimetic mechanism is to power the defense system machinery. These machine acts as aides for a soldier. The primary destination of the mimetic automaton is to decrease anthropoid losses in arm redactor terrorist outbreaks.

The camouflage mechanism turns as a cybernetic spy and could send strategic positions of army importance for observation and conflict. Since it is very difficult to find, it is with the person naked eye. The Small android robot that can

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spare the shades where it moves and therefore blend in with the competitive world. To attain these objectives, we tend to use an LED matrix (RGB) capable of diffusing uniform colours. In today's words, science and technology is growing rapidly with new inventions, innovations and with an advanced level of its implementations. These advanced immersed technologies are firmly adapted by the defence services to provide some security systems for our soldiers. The security of the nation is observed and uninterrupted by the navy, army and air force.

The important role is that of soldiers who contribution their lives for nations. One of the key considerations is that the enemy places the mine on the road. Therefore, it is very important to take over this mine and spread it to save the lives of troops and armies. This can currently be created using our robotic vehicle for detecting anti-personnel mines with GPS positioning. The system can scan an oblong space efficiently and scan it for mines. For this, the system uses a sensor to detect these mines. Once the system uses GPS to track the location of the mine, it sends an SMS message indicating the location of the mine that is hidden in the ground.

II.MOTIVATION

The reasons for the maximum levels of autonomy in the area of military systems have multiple survival possibilities, multiple levels of command (one out of many), minimize data transmission speed, reduced supervision assignment and active pliability. The main provocation dishonesties in 2 of these spaces: (1) the network needs data and processing by the systems besides (2) sinking the overhead. The long-term town image for the Human Strength involves of land and air units, together worked and unmanned, in a solo network. Samples of unmanned structures contain unmanned floating automobiles, huge and lesser unmanned land automobiles, unmanned ground stations, automation with a backpack capacity of up to forty pounds. Finally, an automatic map-reading organisation is provided to provide these capabilities to crewed vehicles that are still in robotic vehicles and armed mules. The Technology Alliance cooperative was established to provide exploration base for robotic knowledge. The alliance focuses on many important areas, along with contemplation, intelligent management in environments with complicated action plans and the human-machine interface.

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III.BLOCK DIAGRAM

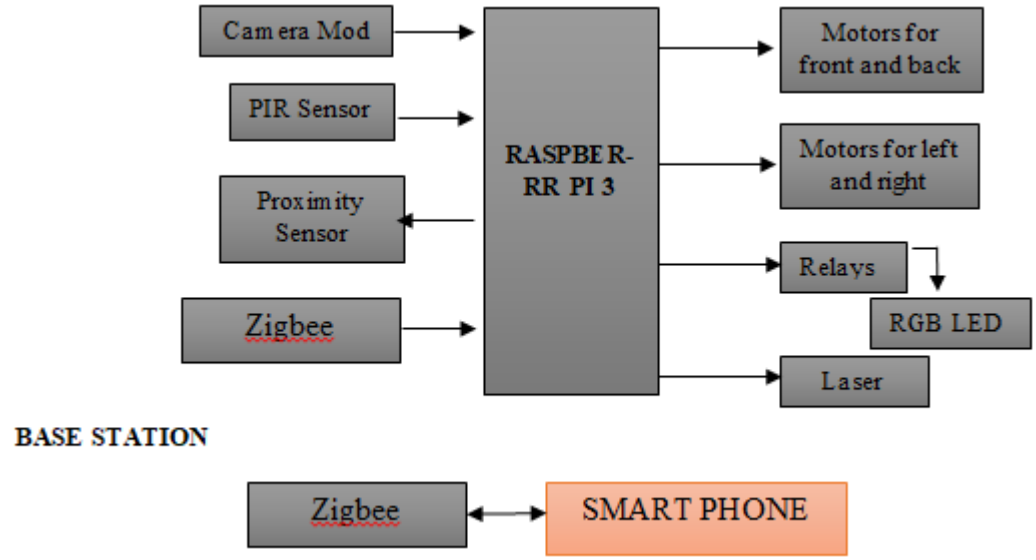

Fig. 1: Block diagram of proposed system

IV.METHODOLOGY

Raspberry Pi is used for two action modes. This is done when the signal passes the raspberry pi and is the main control of cell phone movement. The motion of the robot is controlled with the keys for all four directions as well as the start and stop function on the web server. An H-bridge is associated with an electronic assistance circuit which will drive the engine in every direction. A digital camera can be a video camera that transmits images in real time to a PC or an electronic network, generally via USB or Wi-Fi. Together they have become a source of privacy and security concerns and some webcams can be intrinsically activated remotely via spyware.

The previous concept of the automatic weapon targeting system is to detect and target any movement in a highly secure area such as the frontier using automation to the live objector. The automatic target of the weapon is the main base of the PIR sensor, the video camera module and the raspberry pi. This structure is planning to track the object in real time and provide security through the peripherals connected to this system. The operation of the system consists of several steps which include processing the video signal from the camera. The video is first converted into the raw digital format and then its luminance portion is extracted by applying image processing algorithms.

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V.COMPONENTS USED IN PROPOSED SYTEM

Fig. 2: Zigbee module

Fig. 2 shows the Zigbee module which is identification based on for a series of great-level conveying protocols used to form a small, low-power digital radio personal area network. It is low power, low data rate.

Fig. 3: PIR Sensor

Fig. 3 show the PIR sensor detects a human being movement from range of ten meter of the sensor. It is an average value, since that definite detecting range is between 5 and 12 m. PIRs mainly consist of a pyre-electric sensor, capable of detecting the infrared radiation level.

Specification:

Voltage: 5v-20v

Power Consumption: 65mA

Sensing Range: Less than 120 degree, within 7 meters

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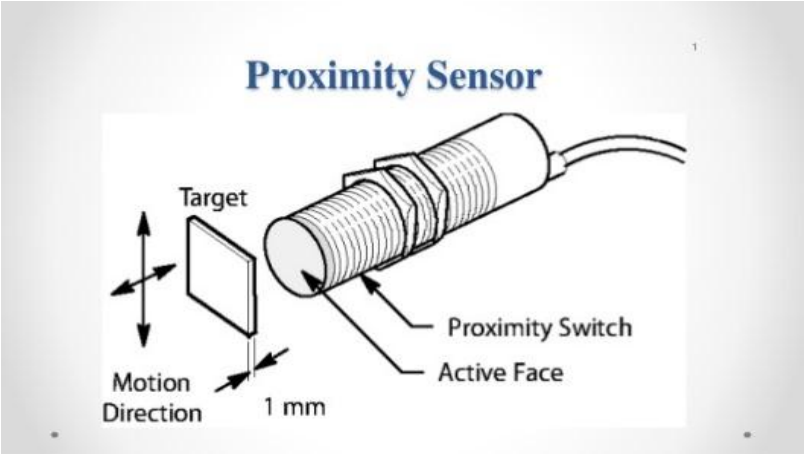

Fig. 4: Proximity Sensor

Fig. 4 show the proximity sensor is a non-contact type device capable of detecting the presence or non-appearance of object. They use the electrical property of capacitance and capacitance changes based on the variation of the electric field around the active face of the sensor.

Fig. 5: Raspberry pi 3 model B+

Fig. 5 show the raspberry Pi is a cheap rate is a, it is a small sized device that plugs into upkeep track on and used with a standard keyboard and mouse. The raspberry pi is a small device that allows publics of all ages to discover computing, quickly to learn how to program by using software skills like python.

- The raspberry pi system has quad core 1.2GHz Broadcom inbuilt software BCM2837 64bit CPU
- The system has inbuilt 1GB RAM.
- The raspberry pi system has BCM43438 wireless LAN and Bluetooth is inbuilt on board

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- It has the 100 base Ethernet.
- It is a 40-pin extended GPIO pin.
- The board comes with 4 USB 2 ports.
- It is four pole stereo output and composite video port.
- It has complete size HDMI port.
- The device comes with camera port for attaching a raspberry Pi camera.
- It is with presentation port for attaching a raspberry pi touch screen show.
- It also comes with micro SD port for uploading your operating system and storing data.

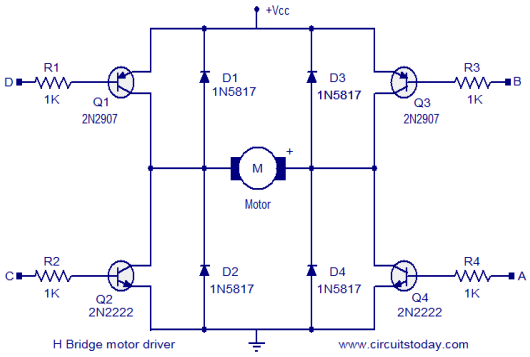

Fig. 6: H-Bridge

Fig. 6 show the H bridge circuit here comes from a modest H-bridge motor control circuit that uses quickly accessible components. H-Bridge could also be a really active process of driving motors and hooks so more applications in electronic projects, in specific robotics. The typical circuit display can also be a four-transistor H bridge. Resistors R1 to R4 perimeter the rock bottom current of the consistent transistors. The circuit operation of this H-bridge is extremely easy to realize. The terminal of diodes is grounded and another is connected to + Vcc. Transistors Q1 and Q4 turn on and the current flows through the motor from left to right. The terminal B is grounded and C is also connected + Vcc. transistors Q3 and Q2 turn on and the current passes through the motor from right to left causing it to rotate in the other direction.

Fig. 7: DC Motor

Fig. 7 shows the DC motor where electrical machines whereby DC electric power is converted into mechanical power. DC motor some quite internal mechanism,

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which is electronic or electromechanical. In either case, the track of current flow partially of the motor is modified periodically. The speed of a motor is control by variable voltage.

Fig. 8: Quantum USB Camera

Fig. 8 shows the Quantum 25MP webcam combines space with image quality and excellent reproduction. It's built into a microphone that helps you talk to them online and enjoy a clear conversation during a video. Just hook this 6 LED webcam on your PC and start chatting without downloading any units. The webcam also has six lights that turn on automatically in the dark. It has 16 computer graphics and 10 background frames. The USB webcam with microphone and USB 2.0 has high speed interface. The 25 MP Quantum webcam has night vision and some advanced features such as brightness control, sharpness control. With the built-in CMOS sensor during this webcam, images are rendered in supreme quality.

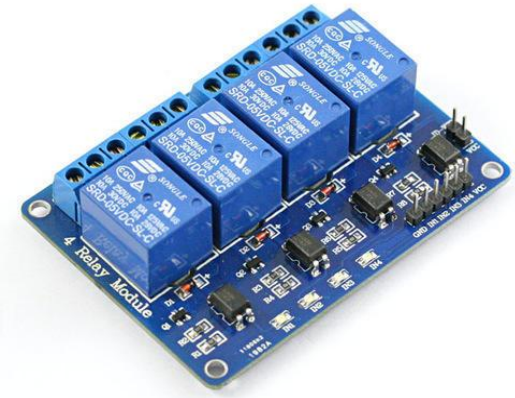

Fig. 9: 4 Channel Relay Module

The above fig. 9 shows the channel relay which is a 5 V 5 channel relay interface card and each channel requires a 15-20 mA controller current. Often many high current appliances and equipment are not controlled. It is furnish with a high current relay that works in AC 240 V 10 A or DC 30 V 10 A. It’s typical interface which will be controlled directly by the Raspberry pi.

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- Channel: 4 channels
- High current relay DC30V-10A
- Vcc: connects 5 V of positive power
- Gnd: connects the negative 5V power supply
- IN1-IN4: signal trigger, active bass

VI.SOFTWARE REQUIREMENTS

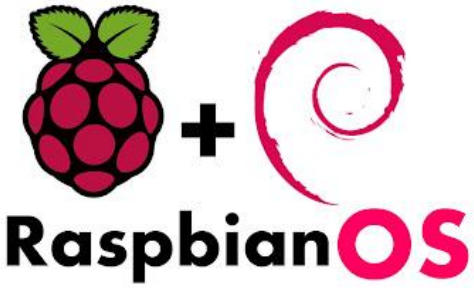

Fig. 10: Raspbian OS

Fig. 10 shows the Raspbian OS which is a free working system which is used as Raspberry Pi hardware to simulate. The operating structures are the set of basic programs and simulate the hardware. The Raspbian system much more than it an operating system, it comes with over unlimited bundles, there are pre-built software included in a format for easy to fitting by Raspberry Pi. This system used for good production on the Raspberry Pi, this system is finished work in June 2012 of Debian packages. This is not with the Raspberry Pi Foundation. Raspbian was developed by a minor and committed group of inventors who are all likes of the Raspberry Pi hardware, aims of the Raspberry Pi basement and course.

Fig. 11: OpenCV Library

Fig.11 shows OpenCV which is exposed source computer Vision network is a library of programming functions is aimed at artificial vision in real time. It is really established by the Intel, it was subsequently maintained by Willow Garage and subsequently (which was subsequently acquired by Intel). The collection is cross-podium and can be used for free with the open source BSD license. Open

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CV supports the work of Tensor Flow, Torch / PyTorch and Cafe deep learning frameworks. It has C ++, Python, Java and MATLAB interface and are compatible with Windows, Linux, Android and Mac OS.

VII.SYSTEM ANALYSIS

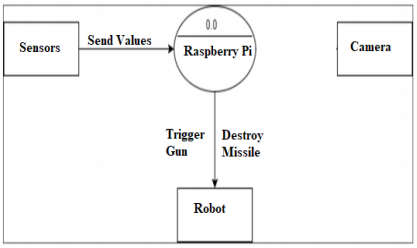

Fig. 12: Stage 0 Data Flow Structure

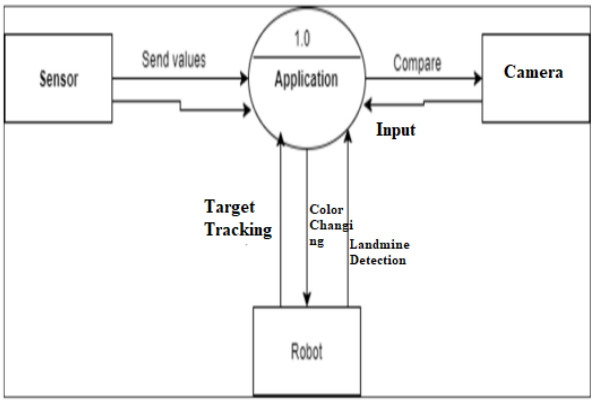

Fig. 13: stage 1 data flow structure

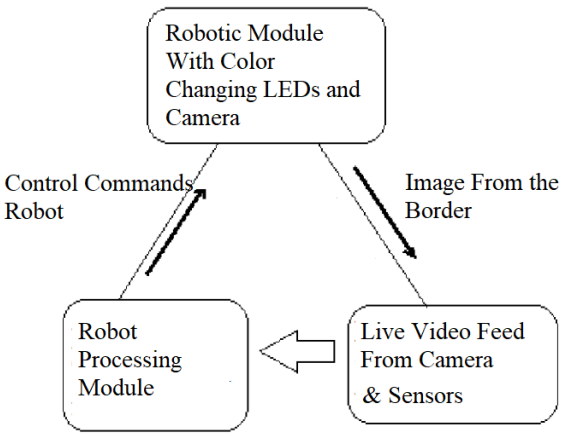

Fig. 14: Colour Changing Process

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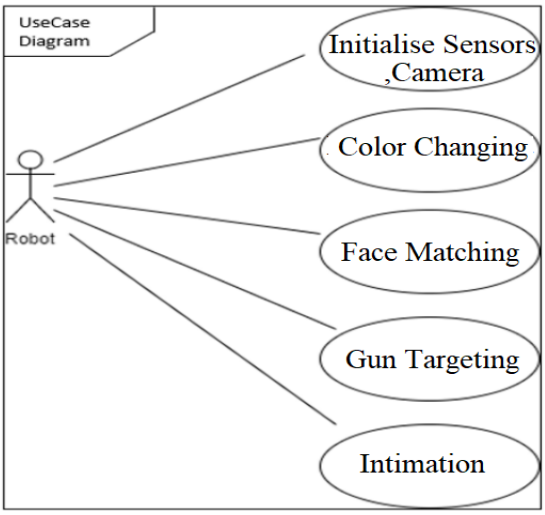
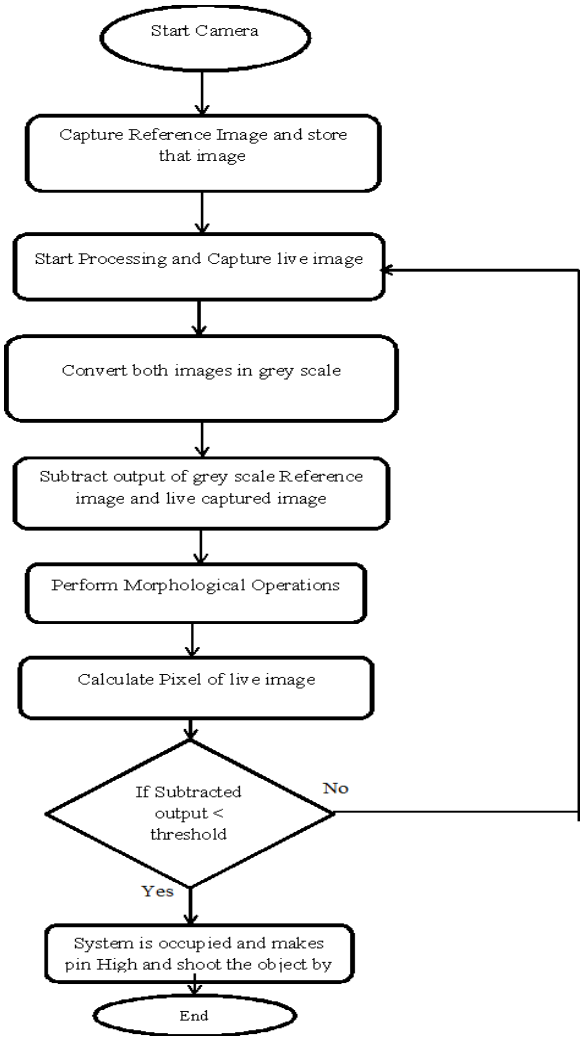


Fig. 15: Use Case Diagram

VII.RESULT AND CONCLUSION



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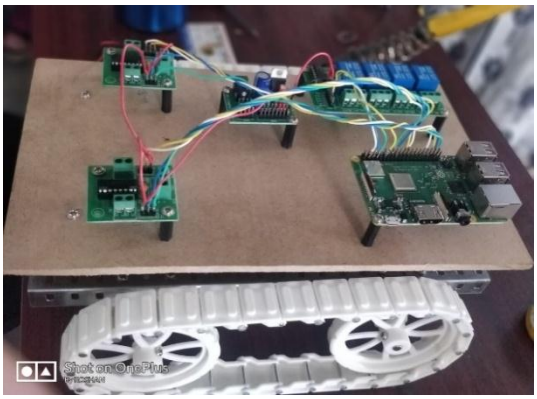

Fig.17: Base Model of proposed system

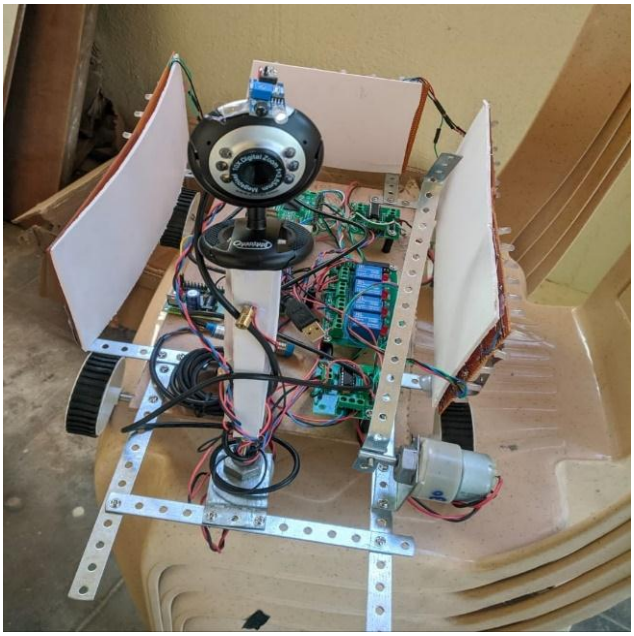

Fig. 18: Camera and sensors are implemented in this system

The proposed system replaces human life. Since human life always has a higher priority, this proposed robot helps act as a safety system and also as a life preserver. It represents and plays an important role in monitoring areas of the war field and capturing the surrounding environment. Since it relies on the effects that change colour of chameleons, the robot changes colour according to the environment and is hidden from the vision of the enemy. Furthermore, the camouflage features make it hard to find the robot with the bare eye. The robot also captures live images of the surrounding area so that you can monitor and analyse the territory of the war camps. If an obstacle is detected, you will be warned and the robot will stop moving. Therefore, throughout the proposed

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system it helps our safety forces in finding burglars. The robot is used in high altitude temperature where no humans can survive.

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