Alive Human Being Detector and Anti theft Robot

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Abstract: Many areas of the world get affected by natural catastrophe. Disasters are unescapable and leave behind a great loss of life. Tragedy like earthquake, floods, etc. cause mass destruction and often lives get buried or trapped in debris. In such situations detection by rescue persons becomes dragy and due to the big area that gets affected it becomes more complicated. Hence, we are giving a human detection robot which can detect alive humans in disaster area so that timely help can be made available to the victims. The robot is consists of a Passive infrared sensor to detect live human, an obstacle detector to remove any obstacles in its way, a camera to send images to control unit. Microcontroller is used to control the robot and is the core of robot. The robot consists of a three wheel geared drive with DC motors attached to perform forward and back word motion.

Index Terms: Calamity, debris, PIR sensor, robotic arm, control unit, DC motor.

I. INTRODUCTION

A timely exploit can only save the people who are inhumed and bruised due to a disaster. In such conditions, exploit system must take fast decisions under pressure, and try to get suffers to safe area at their own risk. The exploit system must collect the location information and status of suffers as quickly as possible so that medication and fire-fighters can enter the disaster prone area and save people. All these works are done mostly in very harmful and delicate conditions by human and trained dogs. Detection by exploit persons becomes time exhausted and due to the big area that gets affected it becomes more complicated. So the paper gives a mobile exploit cyborg that moves in a harmful area and helps in identifying the live people and rescue operations. A cyborg designed to move concrete, parts, tools or gadget through variable programmed motions for the performance of a number of tasks. Cyborg consists of a structure; such as a wheeled platform, arm, or other construction, capable of sensing with its environment. Several sensors are used to sense the problems and give useful feedback command to the device. Systems to process input in the feedback of the current situation and guide the device to do actions in response to the condition. The main objective of the project is to implement a Wireless cyborg which can be regulate through PC using Ride and Flash magic interface and navigates around the disastrous area and tries to find the humans who need help. The Robot can detect the live human based on the IR radiation emerging from the humans. It is provided with a Proximity infrared sensor for detecting live humans and for obstacle avoidance the robot is equipped with a robotic arm.

II. PROPOSED SYSTEM

HARDWARE:
The project gives a mobile exploit cyborg that moves in the disaster prone field and helps in identifying the live people those are wounded and pdo exploit system operations. Hence due to the timely detection of victims precious life can be saved without the help of large number of rescue operators. The hardware system made up of a transmitter section and a receiver section. Figure below shows the systematic block diagram of alive human detection and antitheft cyborg.

![Block Diagram Of Alive Human Detection System](image)

A. Microcontroller

The microcontroller that is been used is the special SST89E516RD controller. The microcontroller is used to collect the data from the sensor unit in real time and gives the corresponding information data to the Central Processing Unit of control room. It also receives instruction from the CPU and gives it to the robot unit for its movement. The microcontroller is the crucial of the
surveillance robot. It has an 8K Bytes of In-System Programmable (ISP) Flash Memory. Operates at a range of 4.0V to 5.5V and has 256 x 8-bit Internal RAM.

B. Passive Infrared Sensor

A Passive Infra-Red sensor is an electronic gadget which measures infrared light radiation from objects in its field of view. Visible movement is detected when an infrared object with one temperature, such as a human, passes in front of an infrared object with another temperature, such as a tree.

   □ Design

Infrared radiation enters through the front of the sensor, called the sensor face unit. At the core of a passive infra red sensor is a solid state sensor or set of sensors, made from approximately 1/4 inches square of natural or man made pyro electric materials, usually in the form of a thin film, out of gallium nitride, caesium nitrate, polyvinyl fluorides, derivatives of phenylpyrazine, and cobalt phthalocyanine. Lithium tantalite is a crystal exhibiting both piezoelectric and piezoelectric properties.

   □ Feature

   a. Single bit output

b. Jumper selects single or continuous activate output c. Mode, 3-pin SIP header ready for breadboard or through whole Project.

   □ Small size makes it easy to conceal

   □ Compatible with BASIC Stamp, vane, and many other microcontrollers [1].

RF communications incorporate a transmitter and/or receiver.

   □ RF transmitter

The encoder IC HT12E acts as a RF transmitter. HT12E is an 18 pin IC. It can encode 12 bits of information. Transmission Enable pin in the Integrated Circuit is responsible for transmission of data. Encoders are a series of Complementary Metal-Oxide Semiconductor LSIs for remote programmed data are transmitted together with the header bits via an Radio Frequency or an infrared control system applications. They are capable of encoding information which consists of N address bit lines. The transmission medium upon receipt of a trigger signal. The HT12A additionally offers a 38 kHz carrier for infrared systems.

   □ RF receiver

The decoder IC HT12D acts as a Radio Frequency receiver. It is a 18 Pin DIP. Operating at a voltage of 2.4V~12V. It has low power and high resistance to noise and low stand by current. It can decode 12 bits of information. It is also capable of converting serial input into parallel outputs. These decoders are a series of Complementary metal–oxide–semiconductor LSIs for remote control system applications. For proper operation a pair of encoder or decoder with the same number of addresses and data format should be chosen. The decoders receive serial addresses and data from a programmed series of encoders that are transmitted by a carrier using a radio frequency or an infra red transmission medium.

III. SOFTWARE TOOLS

Software tools being used to articulation the hardware system to software system are:

   □ RIDE

   □ FLASH Magic

A. RIDE

Ride is a full featured integrated development environment that provides seamless integration and easy access to all development tools. From editing to compiling, linking, debugging and back to start, with a simulator, ROM monitor or other debugging tool, RIDE conveniently manages all aspect of the embedded system development with a single user interface.
B. FLASH Magic

Flash Magic is a tool which is used to program hex code in EEPROM. It supports the microcontroller of Philips and NXP. We can burn a hex code into those controllers which support Internet service provider feature. If a device supports Internet service provider then hex code can be easily burn into EEPROM of that device.

IV. ADVANTAGES

- This system is an efficient and a safe system to ensure that there are no humans left behind in an exploit operation.
- The system is safe even for the user because of the use of robotics and no physical work in field.
- The design of this robot is simpler to understand. This system provides high reliability.
- They work efficiently in environment where it might be dangerous for humans.
- Precise positioning and repeatability of movement since good stepper motors have an accuracy of 3 to 5% of a stride and this delusion is non-cumulative from one stride to next.

V. CONCLUSION

Hence many lives can be saved by using this autonomous vehicle during a disaster in a short duration which becomes time consuming and unaffected if done manually. The application of wireless sensor network will improve the saving of many lives by using mobile exploit robot in disaster prone area. In this project we design an effective & safe system to ensure that there is no human left behind in save operation.

REFERENCES

[6] Obstacle Avoiding Robot – A Promising One-Rakesh Chandra Kumar , Md. Saddam Khan , Dinesh Kumar ,Rajesh Birua

References:


