



ANDROID CONTROLLED SURVEILLANCE ROBOT USING IOT

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ABSTRACT

There is a huge need of security most of especially in homes,work places,military area,boards.there has always been a high demand for security systems thst could protect man,property,boundaries of nations.Thia project aims to provide surveillance in highly sensitive areas,terroist hotspots without having to risk human life for the same.In this project we use a raspberry pi which controlled via an Android Bluetooth app and a 360 degree night vision camera for surveillance purpose.The camera provides a live stream of the video that it captures which can be seen an Android app as well .The app for the camera also a complete 360-degree rotation providing complete surveillance also featuring provision saving video as well as the audio.The spy robot chassis powered by a Raspberry pi is interfaced with a Bluetooth module that communicates with an Android app which sends direction controls to the chassis.

KEY WORDS: Arduino,Raspberry pi,Camera,Surveillance robot,Bluetooth

1. INTRODUCTION

Robots are defined as mechanical devices that can perform physical tasks using either man control or artificial intelligence. The considerable development in fabrication of the processors and sensors makes the robots to be more intelligent. One of the important applications of the robots is surveillance. The surveillance is the operation of the monitoring humans, locations, and areas. This commonly occurs in a military application where monitoring enemy's locationandtheborderslines Are important toacountry'ssafety. The processof deploying human near sensitive regions is called human surveillance. This type of surveillance is limited, because the human cannot deploy in risky and inaccessible locations. These locations threatene the life of a human or make him vulnerable to capture by the enemies. The great prosperity in networks and robot technology provides the feature of monitoring the critical areas remotely Using robots instead of persons. The aerial and terrestrial the robots can collect details that are not clear to the

humans. the collecting data able a specific reason remotely can be achieved by equipping the robot with prices sensors and cameras. the advance in a wireless communication facilities the communication with the robots and getting a real time video seamlessly. High definition surveillance camera using Raspberry pi is set up in the area which we want to monitor Live steam video can be accesed from anywhere by just entering the static be assigned to the system in your web browser Video containing motion is detected under stored in a could drop box or in a separate windows shared folder.robot with a wireless mode of control and monitoring of individuals or areas with manual control techniques and building it in an optimal method that is cost -efficint and user friendly.

2. Existing system

in general for home security purpose the wifi enabled robots are used for various applications if any people coming inside that robot watching or monitoring them.just like

spy.the existing robot only used for surveillance purpose,CCTV camera also doing the same. there is no big difference between them this is a major drawback of the existing system since it is not focusing accurately in many places.

3. PROPOSED SYSTEM:

Technology such as infra red .bluetooth .wifi which has developed in recent years goes to show the very fact that improvement are in fact possible and these improvement have cased our life and the way we live remote mangament of several home and office applicants is a subject of growing interested and in recent years ago we have seen many systems providing such control.

Mobile robots are robots which have the ability to move around and interact with their environment and not just hinged to a particular place there are many labs and research groups from various universities and industries which are completely dedicated on researching mobile robots ,because of their immense potential and varied application in industry ,military security ,and entertainment .

we use a network ca,era.mounted on the robot for providing the live videofeed we have developed our own app to control the robot wirelessly

our app includes livig video streaming it can be used for various real world applications

we use arduino board which is cheaper than raspberry pi

we use android phone instead of expensive camera

SCHEMATIC DIAGRAM

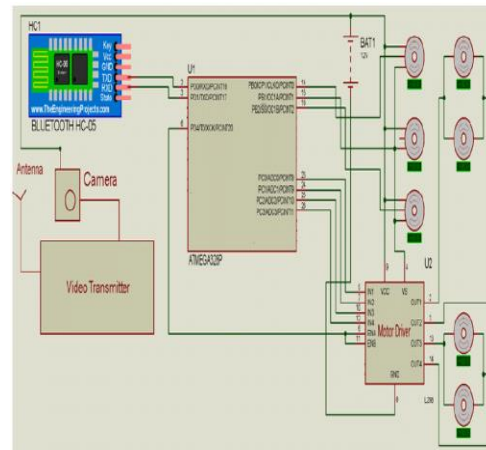


Figure 3.1 Schematic Diagram of Android controlled surveillance robot.

The brain of the circuit is Raspberry pi.It is single board credit card size computer based on A 900MHz quad-core ARM Cortex-A7 CpU with 1Gb RAM. It is also equipped with two IR Obstacle sensors which allow it to see the obstacles that you can't ,because well,you're not there.it will detect an object and if the object detected,it will change its direction .As stated before,the robot has quite a few sensors on board.It also has a camera which can be used for video surveillance of human beings We have also used a motion sensor to detect human movement .If a human is detected ,the system will enable a camera module .It also has an L293 motor driver to allow sufficient current to power the motors via the Raspberry pi GPIO .we have established.

WORKING:

- In this block diagram first power supply is connected to the raspberry pi.And power supply is entering into Bluetooth terminal and light will be blink.
- Install Bluetooth termina HC-05 app in your mobile and tap on HC-05.
- After pairing the device Bluetooth device
- After pairing Bluetooth terminal HC-05 It will appers the command section and it will ask the asqueie command to run the robot.
- The command are give to capital letters

- First command is taken FORWARD command it will run forward direction
- Next it will give BACKWARD command then it will run backward direction
- Next it will give LEFT command stop the left wheel and run to right wheel to the right direction
- Again command will give RIGHT then stop the right wheel and run to left wheel to the left direction
- Download the IP web cam app.

Hotspot is on the ip web cam app.next another mobile is taken and on the wi-fi

- Search the IP code in google chrome
- Live stream video shows the IP web cam to the wi-fi terminal in the phone

The working model of the proposed surveillance robot by using raspberry pi module was successfully designed and implemented. The performance of the circuit was analyzed for different conditions. The circuit was able to controlled via an Android bluetooth app and a 360-degree night vision camera for surveillance purpose. Circuit was tested for measurement of various distances in different atmospheric conditions, accurately. It has a fast response. The surveillance robot module work fine. It responds to the night vision camera accordingly. By using IoT we were able to reduce the cost and increase efficiency. This implementation has been a major component in the circuits of major fast consuming Technology.

4. PROBLEM STATEMENT

The currently accessible robotic technologies like iocomotive robots and self-guided vechicles like petrol robots,pathfinder robots,industrial carrying robots,etc,make human life comfortable for which they were developed.But the current analytical robots that are available have bulky hardware and controllers mounted onto them,which makes them expensive and nectic to trobuleshoot.Hence ,to relieve

humans from such burden new methods has to be devised and better progression by making the robot lightweight .This project deals with making a

5. RESULT

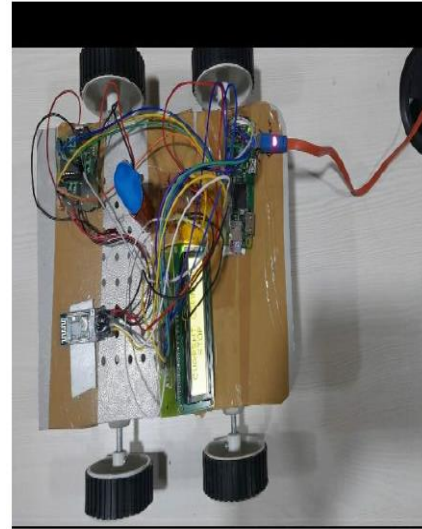


Fig 5.1 Final report on surveillance robot by using raspberry pi



6. CONCLUSION

In this system Interface sensors with Raspberry Pi, Interfaceactuators(Motors) with Raspberry Pi, Communication using International Journal of Engineering Science and Computing, April 2019 21258 HTTP, Display data and live streaming on web page. We have studied direct types of sensors, Raspberry Pi Board, Motor controllers in this report. This system is useful in restricted area, home security and to the soldiers. It ends the early disaster notification to the soldiers by using deferent sensors. It helps to save human life in risky area. Many sensors are embedded on the Raspberry Pi board which sends notification through Wi-Fi through Web page.

7. FUTURE SCOPE

There are lots of improvements that can be made on the current design and technology and lots of additional features can be added. The current autonomous navigation is a blind method where the robot doesn't keep track of the direction of where it is heading. So in the future we would like to add an electronic compass for the robot to keep track of the direction. And a better method of cell based navigation can be done with the help of encoders for which a provision is provided. The architecture can also be modified by providing a more powerful embedded computer which could handle HTTP requests within the robot itself. After successfully manufacturing our robot and arm, and programming the same

According to our needs,we tested the following things:

1. Motion of the vechicle on irregular surfaces which was simplified due to the use of conveyor belts.
2. Camera Interfacing and video output on the GUI

3. Working of the arm in all possible movements

4. Action performed by the robot according to the

If this prototype were to be realized actually by the defense ministry ,it could do with a lot of modification like:

- Mobility on the ground
- Image processing
- Installation of more camera will give a 360 deg view.

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