Multipurpose IOT Robot

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College ***:*** *GM Institute of Technology, Davangere*
Branch ***:*** *Department of Mechanical Engineering*
Guide(s) ***:*** *Mr.Sureshbabu S U*
Student(S) ***:*** *Mr. Ramesh Badiger*
Mr. Sharath B R
Mr. Surya Kiran B P
Mr. Vijay V Badiger

Keywords:

Theo janesen mechanism , Live telicast , Human detection, Smoke/Fire detection

Introduction:

Robots like, wheeled and legged robots are developed to perform operations such as object detection, surveillance operation, search and rescue operations. The constraints of available robot are in terms of computational speed, cost, structure complexity and space. To overcome the difficulties of the current technology, the proposed Multipurpose spy robot includes theo janesen based drive system with video streaming of live activities and obstacle detection.

The 3D model/ structure of the spy robot is designed in CATIA . The motors, sensors will be interfaced with the structure and the system is driven using Arduino controller. The fabricated model consists of, drive systems and outer shell of the spy robot. The android application is developed and is interfaced with the Bluetooth IP address to control the movement of the robot. Also, camera is attached to the external link of the robot that provides the live streaming using wifi.

Objectives:

The main objective behind developing this robot is for the surveillance of human activities in remote places .

- The robot consists of HD wireless camera which can transmit videos of the places it is being used.
- Real time mapping of the building interior.
- Detection and location of humans presence inside the building.
- The model is controlled by a mobile based app.

Methodology:

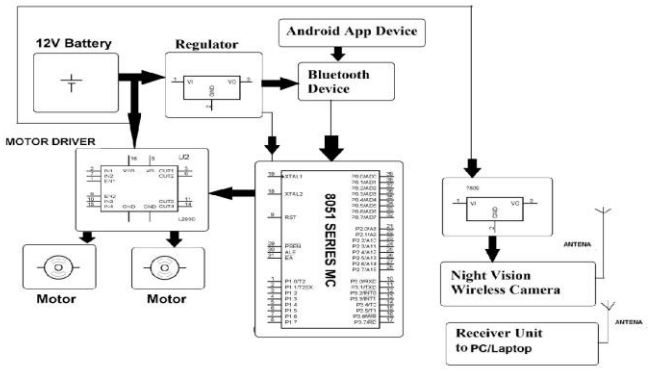
In this system the microcontroller is the heart. It is controlled from outside device i.e. Android phone which communicates with microcontroller via Bluetooth personal network. An Android app is used to control it. Here DC gear motor is used to move the system back and forth and also towards move any direction.

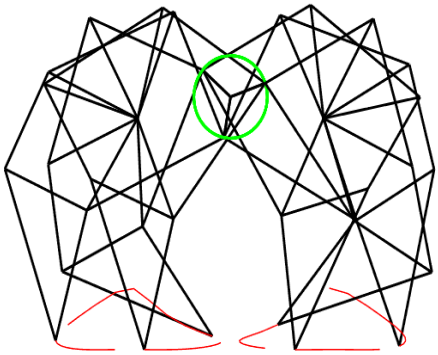
Here, an Android smart phone acts as a remote controller device for controlling the movement of the robot. An Android application is used for this purpose. The application supports only the 2.2 and above versions of Android Operating Systems. The Bluetooth module acts as an interface between Smartphone and microcontroller. HC-05 Bluetooth module is used for this system.

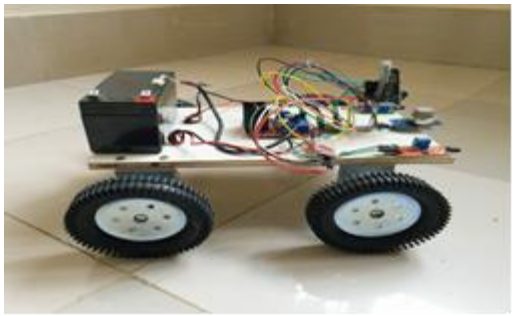
Bluetooth module fetches the commands given by the smartphone to the microcontroller. The microcontroller acts as the brain of the robot. The robots movement is decided by the microcontroller. In this system contains microcontroller named Arduino Uno. The microcontroller will be programmed with the help of the Embedded C programming. Arduino has its own programming environment through which the microcontroller can be programed.

For travelling purpose this system uses DC motor. It generates high amount of power and torque. A motor driver is used to control the DC motor which is connected to the microcontroller and the Bluetooth module is connected to the same.

This consists of a vacuum suction holder which helps the robot to balance itself in an uneven surface







Results & Conclusion:

As states above with a deep description of the major parts of the project. The project as a whole can be used in security based systems with a camera installed into it.it founds its application to find in people in case building collapses since human being cannot reach in each and every corner in such scenarios. Installation of such spy robots in stadiums, sacred places , government and non-government organization assures top security as it serves as a moving unit

It utilizes the latest android technology wherein the camera unit of the receiver section, such that the ease of installation, connections and usage becomes much easier as compared to normal WEBCAM units to be mounted on the robot.. It saves human life, it's better to afford a loss of robot in case the robot is been detected by the enemy or thief rather than losing human life. It has self-defense unit wherein with providing security to the user, it also serves itself by having obstacle detector, smoke detector feature incorporated for the same, which avoids from crashing and damaging itself. Which makes the robot intelligent

Scope for future work:

The project stated above can be further enhanced by incorporating various types of sensors like pressure sensor, fire sensor, light sensor, temperature sensor, and incorporate GSM unit as well so that the in case of any threat it will send notification on personal computers or mobile system, hence It can be enhanced as an alternate system as well besides this, a gun type mechanism where in laser pointer can e incorporated in the mechanism can also be incorporated in the same project so as to make the robot a combat robot. And hence many more advancements can be done so as to improve the performance of the project