Android Controlled Surveillance Robot

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Abstract -In this paper,we propose a system of the surveillance robot. The human cannot record video safely in critical conditions & Environments.These conditions and environments may be buildings where the fire breaks out.Areas with poisonous gases or harmful radiation and the places where there is an exchange of fire such as battlefield. This paper introduces design and implementation a surveillance robot based on WI-FI protocol and windows operating system. The movement directions of the robotic are controlled by a Buttons generated with the help IP Address.The robot can transmit real -time video to the intended recipient.This system will make a robot to perform a security mission.

Introduction

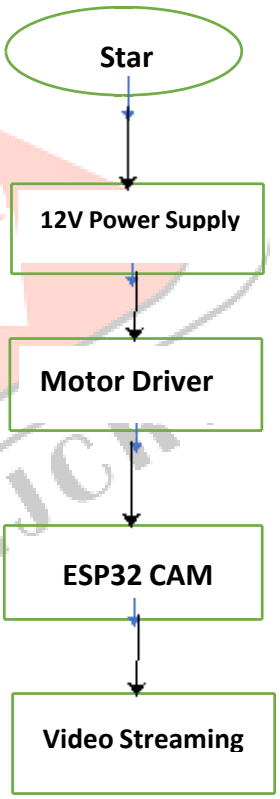
Surveillance literally means to watch from above, while surveillance robots are used to monitor the behavior, activities, and other changing information that are gathered for the general purpose of managing,directing, or protecting one's assets or position. A remote-controlled surveillance robot is defined as any robot that is remotely controlled to capture images /video for specific purposes. Mobile robots that are controlled remotely have important rules in area of rescue and military. Surveillance security robot provides safety like man. Automatic patrolling vehicle for periodic patrolling in defined or a restricted area, the patrolling vehicle can move automatically to monitor the dead zones and capture the images by using the camera.

2.Related Work

Many intelligent vehicles participated in DARPA Grand Challenge have achieved autonomous driving ability. In their driving, natural terrain or urban terrain has to be analyzed for determining driving paths.The semantic perception ability is utilized for various robotic tasks e.g.,spy robots.However there are few examples for security robots. But security robots need to have more advanced semantic perceptron ability that can determine not only roads but also various urban structures such as building,tree,cars and etc.This perception ability is crucial for detecting dangerous or strange situations.There are various researches about semantic perceptron in robotics community.Recent these techniques make security robots to recognize their environments.In this paper, we propose a security robot and suggest the framework to adopt the perception ability to security robot.

Proposed Surveillance Robot

The Surveillance robot contain various parts. It contains wheels,motor driver,DC motors to control the movement & directions with the help of 12V power supply from the bateries.Also it includes holes to install DC motors, camera, Esp-32, the electronic circuits such as DC motor driver, servo motors,& WI –FI module.The DC motors controls the movement directions of the car,while the servo controls the movement of the camera.



Motor drivers :- It acts as an interface between the motors and the control circuits. Motor require high amount of current whereas the controller circuit works on low current signals.So the function of motor drivers is to take a low-current control signal and then turn it into a higher-current signal that can drive a motor

ESP32 Cam :- The ESP32-CAM is a small size, low power consumption camera module based on ESP32. It comes with an OV2640 camera and provides onboard TF card slot.The ESP32-CAM can be widely used in intelligent IoT application such wireless video monitoring.

Steps for Building The Surveillance Robot

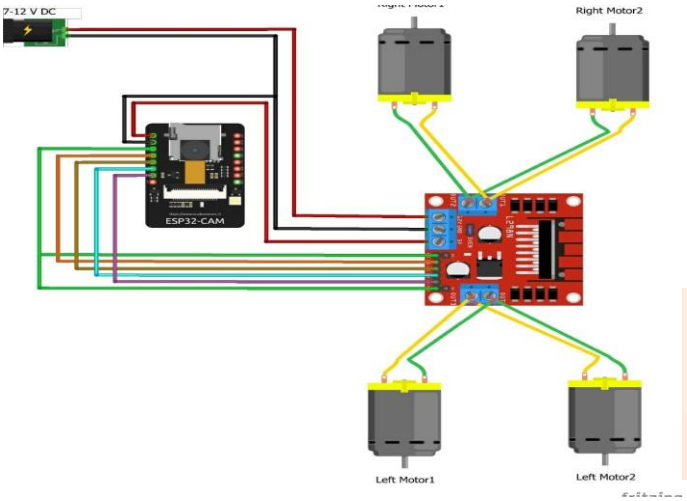
1. Connect the circuit as per the circuit diagram.

2. Program the Esp32 Cam Module using CP2102.

3. After Program Connect the Esp32 to the L298N Motor Driver.

4. The Esp32 creates an IP Address.Copy the IP Address & Paste it on any browser.

5. An UI appears of Remote-control interface & we can control the robot by controller.



Circuit Diagram of Surveliance Robot

Keywords - Surveillance robot, Remote Control, Patrol robot

Conclusion

In this paper, the framework for making a robot for surveillance purpose is proposed. It overcomes the problem of limited range surveillance by using the concept of IOT.We can control the robot with the help of laptop/mobile manually.Our proposed robot is small in size thus manoeuvring into area where human access is impossible.Wireless technology is one of the most integral technologies in the electronics field.This technology is used to serve our project as a supreme part of surveillance act. This provides highly efficient and a cost effective robot that replaces human work and reduces human labour and performing monitoring works in a well effective manner.

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