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Smart Surveillance System

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Abstract

Automated robotic cars are mostly seen in the science fiction movies but they are becoming a veracity and reality. People all around the world are excited to watch the robotic car in reality. As the world progresses, the scientists and the researchers are struggling to take the human life in more comfort zone. People around the World are now quite much enthusiastic about the launch of robotic cars. Now the form theft or attack can be done by anyone at anytime and everywhere we know. So far only CCTV camera has been used for the surveillance system in all areas and with some usage of human power as the securities in the organisations. A surveillance system is used to record or capture any video or images which can be transferred to any desired system. This robot is mostly used in industries. This surveillance robot is providing more benefits in industries. This surveillance robot is used to capture the surveillance images. In the age of development of IOT, it is rapidly growing across the world, the security system enables the user to view the activity around us from the remote location and capture the video or image based on each and everyone's interest. It facilitates the user to receive the notifications when intrusion is detected and view the video from remote area. The IR sensor is used to monitor the line tracking. Then the IR sensor is used to detect the any other obstacle in the path. The Wi-Fi camera is used to monitor the surveillance coverage range. This surveillance robot is providing a more security.

Keywords:

1. Introduction

There are different types of surveillance systems available such as camera, CCTV etc., In these types of surveillance systems, the person who is stationary and is located in that particular area can only able to view what is happening in that place. Whereas, here, even if the user ismoving from one place to another, it can keep track of what is happening in that particular place at exact time. The big advantage is that, it is the easy and simple circuit for understanding and designing. Robots have found a drastically increasing demand for different range of work in our life. Their use in Anti-theft and other monitoring sector increases day by day. Our paper includes one such instance of how a robot can be of use to human race in general.. In this project, we use the line-tracking algorithm to control the robotic car automatically. The robotic- car will move automatically based on the input line and the 360 degree rotatable camera to capture the video to store the data. Nowadays the theft percent have increased, So the people will use CCTV in their homes, offices, banks etc., And these kind of cameras are not movable one, so it can be focused particular sides only. So we can make the product to Robotic surveillance car with 360 degree rotatable with night vision camera. The purpose of robotic car is the movable one. So it can capture video in all kind

of sides. And also the securities are not possible to secure the place all the time. They are also humans; they can be making mistake sometimes. So the robotic car will reduce the human power, it will automatically move particular sides based on the user input to capture the video. The line-tracking algorithm is used to control the robotic car as the automatically moving. The robotic car is not only used for the anti-theft. It can be used for another purpose such as to monitoring the students in the class room and monitoring employees in the offices etc.

1.1. Existing System

Now the form theft or attack can be done by anyone at anytime and everywhere we know. So far only CCTV camera has been used for the surveillance system in all areas and with some usage of human power as the securities in the organisations. A surveillance system is used to record or capture any video or images which can be transferred to any desired system which can be seen or also be a form of evidence for any form of theft. Normally the many offices, homes are used CCTV's and security alert systems. It can be focused particular sides only because of the CCTV cameras are stable one. And some institutions have the securities to protect us. In night time all the securities are not worked someone has asleep and someone has sit the particular place. It's not fault as securities because they are also humans they can be make the mistake sometimes. And someone has to make manually control robotic car to monitoring it. They can make the webpage to create some buttons like up, down, left, right, to control the robotic car. This also difficult to monitoring it because of night time to operate the device is not possible

2. Proposed System

In order to overcome the security issues arising in our environment we have implemented a robotic car which helps humans can be entered into smallest and hardest way of surveillance. This surveillance robot is mostly used in industries; this surveillance robot is providing more benefits in industries. IR sensor which is used to detect the obstacle and also use line tracking to move on the path. The Wi-Fi camera is used to provide the coverage of surveillance from its range. The robotic car moving is based on the line tracking. It can move automatically to capture the video surveillance. The robotic car move mentation is based on the line-tracking algorithm. The robotic car has 360 degree camera with night vision mode to exactly capture it. It can reduce the human power because of the robotic car moving automatically and can also be operate it.

2.1. Node MCU

The NodeMCU is an open source board which is mostly used to create IOT projects. NodeMCU was designed by Espressif Systems. It is the hardware which consists ESP8266 microchip and it supports WiFi connectivity. This is a microcontroller which is low cost in the market and many IOT projects can be developed using this microcontroller.

Figure1:NodeMCU

2.2. IR Sensor

The IR senor consists of receiver and transmitter. The IR Sensor is called as InfraRed Sensor. It consists of a LED and a receiver. In the IR sensor LED light transmits the light and it is detected by the receiver when the light is deflected by an object.

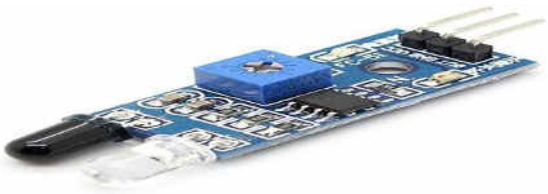

Figure 2: IR Sensor

2.3. 10 RPM MOTOR

The 10 RPM motor is a DC motor. The DC motor converts electrical energy to mechanical energy. The Direct Current creates a magnetic fields into the motor.

Figure 3: 10 RPM Motor

2.4. 4CHANNEL 5V RELAY

The 4Channel relay is a board which is used to control high voltage or current. The relay consists of Ground(GND), VCC(Power) and Voltage. It consists 4 channel so each channel can be used to connect high powered motor and camera.

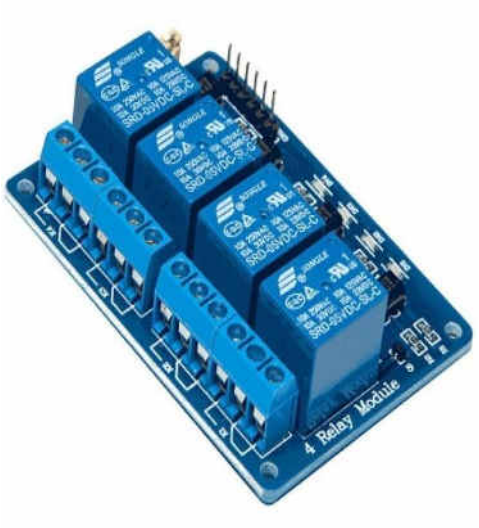

Figure 4: 4Channel 5V Relay

2.5. ARDUINOSOFTWARE

The main software requirement is the Arduino software in this platform only we can develop the program C/C++ codes which can perform similar operations.

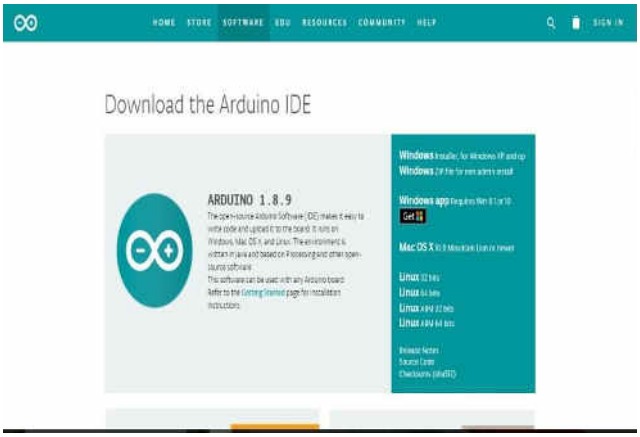

Figure 5: Arduino Software

2.6. SYSTEMARCHITECTURE

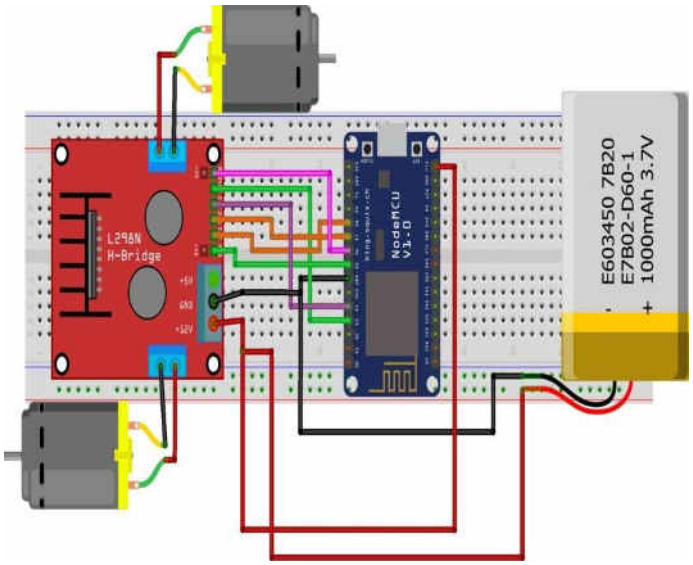

Figure 6: Connection without Camera

The NodeMCU is connected with the IRsensors and the 4Channel Relay. And the relay is connected with two 10 RPM DC motor and camera. The power is given from the Battery. Then the operations will done by the NodeMCU by the input code is programmed.

3. Working Mechanism

The robotic car surveillance method are equipped with the different types of sensors, motors electronic boards and which for the Monitoring the particular area. This can be communicated directly with the switch given to operate the NodeMCU so the program can be written for the automatically moving the robotic car based on the given input to monitoring it.Creating the robotic car is important but the move mentation of car has to be more important. It can automatically moving based on the given input is

important. It is a major factor. To achieve this there are some of the techniques.

While us looking for security, that has lots of choice's to may available it. Like CCTV, anti-theft system, Securities etc. But we can understand one thing; these are all focusedparticular area or particular side only. For example the CCTV are only focused some kind of sides only, it may have different features but CCTV are not movable one. And the securities are focused to work does it. But all the time they can be do it. The robotic surveillance system has moving automatically, the move mentation is based on the given the input. And it has 360 degree rotatable with night vision mode camera to exactly the capture the vision. The robotic car has to reduce the human power and also it is the low cost.

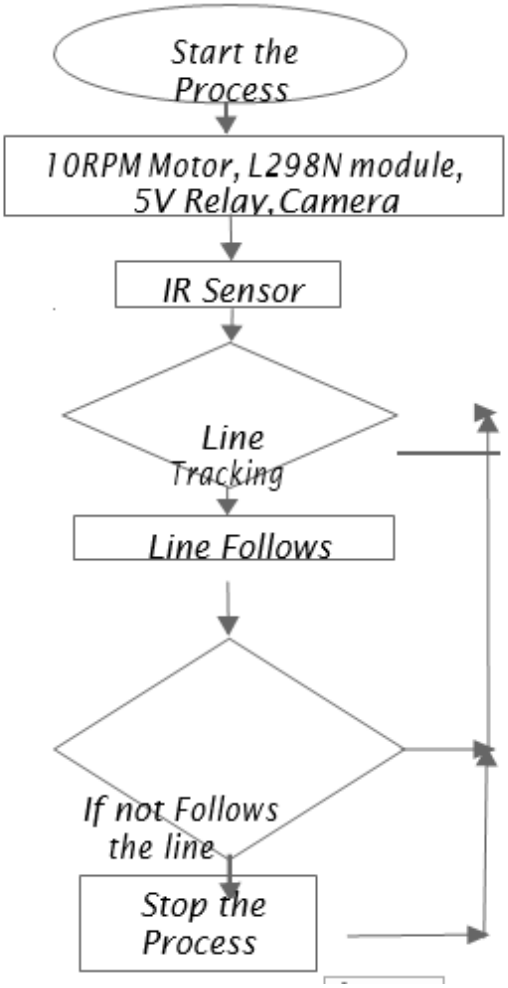

Figure 7: System Operation

4. Results

In the development of each and every people in our society most of their lives not in an secured state. Now the security systems have been easily cracked in our tough life. They undergo rigorous, indifferent behavior towards security issuses. an easy way of theft has been raising around us in our daily information or any news about theft has been understood by us. Not only theft issuses and also we know the danger crimes evovling in our environment,such as insecurity for girls and stealing an informations, money heist in banks and in some of their homes itself. Inorder to stop or limit those crimes we can use this car to surveillance to ensure safety and security measures.

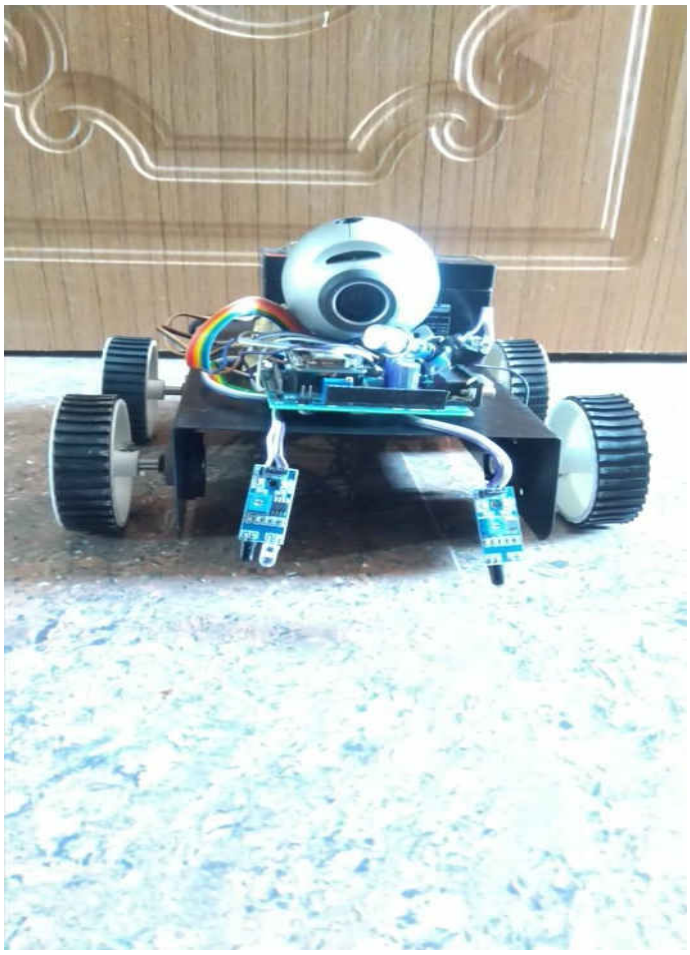

Figure 8: System Module

5. Conclusion

The proposed system is moving a surveillance robotic car automatically monitoring the place. The process only the people need to on/off the method as of now. The designed and mounted on a very simpleand easily.

6. Future Scope

We have planned to use GSM in the surveillance robotic car and any unwanted move mentation has occurred it could be informed to the admin. And also we have another idea for implement the surveillance robotic car to the

chemical industries. Additionally to use the Gas sensor or like MQ-9 sensor to detect the gas leakage and informed it.

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