WiRobot

Group Members

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Summary

- Motivation

In this exposed world with the increase in threat and security risks, the need of surveillance and control has also been increased. Which encouraged us to design a robot car which can be used wirelessly in any area having internet connection and can be controlled remotely. This kind of application can be adopted for surveillance at the border area. The same can be used for remotely observing house or office through the robot.

- Description

WiRobot (Wireless Robot) is a robot which can be used remotely. The WiRobot gets instructions from the user through internet over Wi-Fi network and acts as per the instruction given by the user. Along with this, WiRobot is also gathering the information about the surroundings and will send them to the user through internet. Also, WiRobot is capable of detecting low light and can turn the headlights on and off automatically based on the detected brightness of the environment.

- Final Outcomes
    - After execution of the project, we are expecting to build a robot having four tyres.
    - As the WiRobot can gather the information of the surrounding, we are taking only the video surveillance as part of the information and sending it to user. For this functionality, we are using a phone which will be connected to the user and will send the information through internet.
    - Digital Light Sensor (LDR) will be used for detecting brightness of light and which will control the headlights of the robot.
    - ATmega16 will be used to get the instructions coming through internet via ESP8266 chip and will do the tasks as per the instructions.
    - Tyres and motors will be used to move the robot forward, backward, left and right as per the instruction given by the user.

Components Needed

- Atmega16 (Micro Controller)
- ESP8266 (Wi – Fi Module)
- L293D (Motor Driver)
- Cart (Including 4 tyres and 4 Motors)
- LDR sensor (Digital Light Sensor)
- LEDs

Selection Criteria

MicroController (ATmega8)

Specification	ATmega8	ATmega16	ATmega32	ATmega64
Code ROM	8	16	32	64
Data RAM	1K	1K	2K	4K
I/O Ports	23	32	32	54
Timers	3	3	3	4

Here, we only needed approx. 10 i/o ports and only needed a small amount of data to be stored which can be fulfilled by ATmega8.

Wi – Fi Module (ESP8266)

ESP8266 is an easily available and widely used Wi – Fi Module. We also needed module which receives and transmits data serially which is satisfied by this module.

Motor Driver(L293D)

As L293D driver is compatible with all the AVRs and also with our selected motors.

Time Line

Date/Work	23/03/16	04/04/16	11/04/16	18/04/16	25/04/16
Assignment	X				
Gathering all the components and basic connections.		X	X		
Testing with static code			X		
Program to connect phone and robot over internet				X	
Program Completion				X	
Testing and Demo					X