Micontroller Based Camofalge Robot

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ABSTRACT

The design is based on 89S52 micro controller and various interfaces like RF TX and Rx, dc motors etc. Now-a-days spying the enemies is very difficult for the soldiers because it is life risky process. So for that we have to use the present technology in spying enemies without loss of soldier's lives. The project is basically used to detect an object by using a wireless robot with a camera. This project uses a RF so that the robot can be operated wireless. The whole system consists is divided into two modules, the TX module and the Rx module. The TX module contains keyboard (switch) operation used to control the motion of the robot and the Rx module contains the actual machine (robot) .The robot moves in various directions as per the switching action at the transmitting side. The different key press generates different RF signals. The Rx receives these signals and moves accordingly. But the important thing to be noted here is that there is no connection between the TX and Rx section. Radio frequency (RF signal) makes this task very simple.

The RF TX sends a signal to the micro controller at the Rx side as soon as any key is pressed at the TX side .Now the micro controller at the Rx side rotates dc motors to make the robot move in various directions. Here a mechanical arrangement is provided for the actual appearance of the robot. The main highlight of this design is data transmission without any wire (wireless data transfer) using RF communication. The project design is also provided with an important feature of viewing the images of robotic movement in its path at the remote side on a PC for a total of 360 dig rotation. For this a wireless camera is arranged with a dc motor on to the robot. Thus the design is said to be a Spying Robot with wireless camera. The main highlight of this design is data transmission without any wire and hence it is known as RF based Mobile Robot. The radio frequency that is being used here is 433MHz.A Robot can be of any type to manufacture. Even though the robot can do anything, it is a useless thing if it is uncontrollable. Here, controlling a robot is main task by arranging a gas detector circuit on the embedded platform which is arranged on the robot. If the robot will sense the gas it will send the signals to microcontroller and user will come to know. If any obstacle comes in front of robot it will stop at its position until user gives the command. By using color sensor we will detect the color of floor and accordingly the color of robot will change.

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Keywords-: Accelerometer, AVR microcontroller Atmega328,Arduino compiler, Motor Driver IC L293D, Smart Wheelchair, Gesture Control, Voice Recognition Module V2, Microphone

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1 .INTRODUCTION

The RF TX sends a signal to the micro controller at the Rx side as soon as any key is pressed at the TX side .Now the micro controller at the Rx side rotates dc motors to make the robot move in various directions. Here a mechanical arrangement is provided for the actual appearance of the robot. The main highlight of this design is data transmission without any wire (wireless data transfer) using RF communication. The project design is also provided with an important feature of viewing the images of robotic movement in its path at the remote side on a PC for a total of 360 dig rotation. For this a wireless camera is arranged with a dc motor on to the robot. Thus the design is said to be a Spying Robot with wireless camera. The main highlight of this design is data transmission without any wire and hence it is known as RF based Mobile Robot. The radio frequency that is being used here is 433MHz.A Robot can be of any type to manufacture. Even though the robot can do anything,

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1. LITERATURE SURVEY

Around many researches done in the field of speech recognition. Due to sophisticated signal processing algorithms and powerful computers available, computer based speech processing system nowadays have reached complex structure with high accuracy. The challenge is to maintain standard performance while using limited computation and memory resources. Researches in the area of wheelchair control system are still going on. Many people with disabilities do not have the skill essential to control a joystick on an electrical wheelchair. This can be a great drawback for the user who is permanently unable to move any of the arms or legs. They can use their wheelchair easier only using voice commands. In the proposed design, the main idea of using voice activated technology for controlling the motion of the wheelchair is to prove that it can be an exclusive solution for severely disabled. The purpose of this project is to implement a speech recognition system to recognize the input words from the user. The approach implemented is based on interfacing a microcontroller with a speech recognition IC from a dependent speaker.   For future technology wheelchair would be fully autonomous that will move automatic based on the user

expression and behavior. That should be fully automatic and wireless. In this project firstly we are working on the voice based automatic wheelchair and after that we will combine software based that will be controlled by computer and GSM mobile phones. After that we are thinking on putting a biometric feature in it that should be little bit secured. A lot of efforts have been made to develop robotic wheelchairs that operate in the same way to an autonomous robot so that the user gives a final target and directs as the smart wheelchair moves to the goal. Other smart wheelchairs limit their assist level to collision avoidance, these systems do not normally require prior knowledge of an area. A voice controlled wheelchair can assist by giving input as a voice commands like right, left, back, forward, etc. here we can also controlled our wheelchair by some angle where user wants to rotate its wheelchair by like 30˚,45˚, 60˚ etc. This implementation is new from the other prototype developed and it is very useful for turning the wheelchair left and right with some angle. And this method can be achieve by using servo or stepper motor of high torques and less RPM.

2. EXISTING SYSTEM

This project for military purpose application, some past time when this system not use in military the soldier
For checking the situation at the border of line our soldier is directly shoot by apposite party at this situation this system is very useful.

3. PROPOSED SYSTEM

 In our proposed system, we proposed model of wireless comaflage robo which uses microcontroller modules for transmit and receive the oprations of robo. That robo operates for military purpose . for to security and finds how enemy will planes or there secret planes. We placed camera inbuilt a robo for path and find a mins we placed metal detector

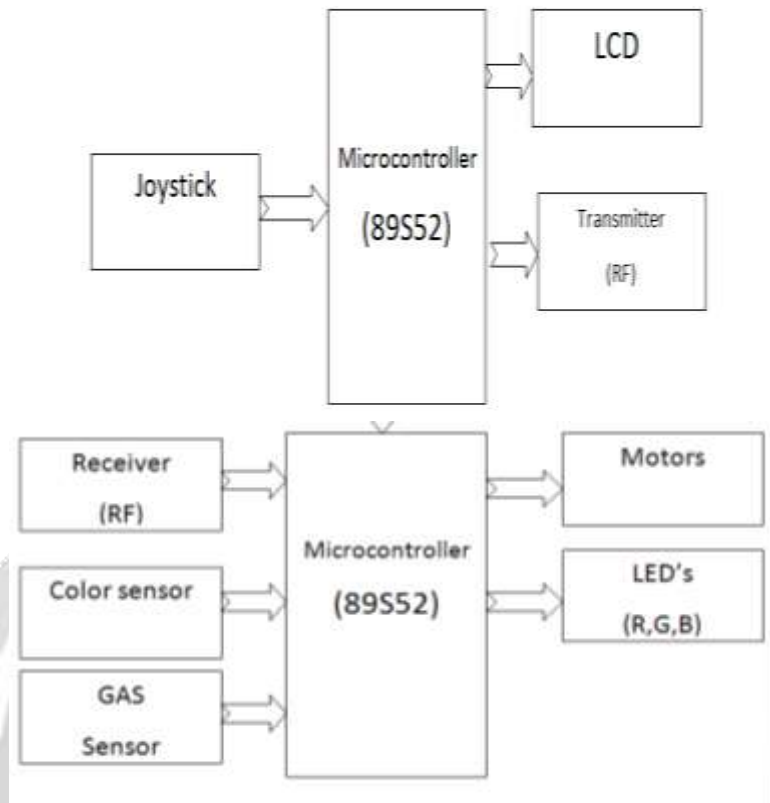## 4. SYSTEM ARCHITECTURE : Transmitter and Receiver

Fig -1: Block Diagram

The different blocks in the system are:-

Here by using joystick the direction of Robot can be specified. The output of joystick will be given to microcontroller (89s52) and then by using RF transmitter it will be transmitted. The datasheet of RF module are given below. The RF receiver will receive the appropriate signal and accordingly again this signals will be sent to Microcontroller. Thus Microcontroller will take the decision and motors will be driven using Motor Driver IC L293D. This color sensor identifies color and gives serial output of RBG value. It can identify 16.7 million color shades giving RGB value for the detected color. The detected color is identified as amount of three primary color values namely Red, Green & Blue with 8 bit accuracy for each primary color. Any color can be separated or combined into three primary colors Red, Green and Blue using the RBG values This color sensor will detect the color of ground and according microcontroller will turn on appropriate color led. And the color of robot will be same as that of ground. In our system our robot will be operated using wireless RF transmitter and receiver circuit. At transmitter end the RF module will be directly interfaced with Joystick such that robot can be operated in any of the directions. At receiver end the RF receiver will receive the appropriate signal and likely it will operate the motors. The wireless camera which is interfaced is used to see the present status in the environment where robot will be present and according to that user can take decisions. If any enemy has exposed gases like ammonia / methane which is hazardous to human can be sensed by the robot and the user will come to know and before entering the place where robot is they can take several decisions which will be quite helpful in military purpose as well. Here just for demonstration purpose we will be using lpg gas sensor which is (MQ6).

4. SYSTEM REQUIREMENT SPECIFICATION

4.1 SOFTWARE REQUIREMENTS

- Proteus Software (For Simulation)
- Protel (For making PCB)
- Keil Software (For writing Code)
- Terminal Software (To send serial data from PC)

4.2 HARDWARE REQUIREMENTS

- MIC 89S52 Controller
- Transformer (For suitable voltage level).
- LED Strip
- Receiver, Transmitter
- Flash magic (For downloading code).
- Color Sensor

5. TECHNICAL SPECIFICATIONS

5.1 ADVANTAGES

- Wireless system.
- Security purpose
- Findings Land mines in border

5.2 APPLICATIONS

- Security purpose
- Military application for findings land mines

6. CONCLUSIONS

 As a conclusion, the project was come out with the operations of Receiver and transmitter circuit. The functions and the operations of the circuits related are very important to be analyzed. With appropriate steps and methodology, any process of completing the project can be managed wisely and will be make a good result. This final section of the report outlines some features that could potentially be implemented in future releases.

7. ACKNOWLEDGEMENT

8. REFERENCES

1. Murarka, M. Sridharan and B. Kuipers. 2008. "Detecting obstacles and drop-offs using stereo and motion cues for safe local motion".IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS- 08).

2. ShilpaGulati, Benjamin Kuipers2008. "High Performance Control for Graceful Motion of an Intelligent   Wheelchair".Proceedings of the IEEE International Conference on Robotics and Automation (ICRA).

3. Srishti, Shalu, Prateeksha Jain, "The Smart Wheelchair Using Head Gesture Control", International Journal of Advanced Engineering Science and Technological Research, vol.3, Issue 1 March 2015,ISSI 2321-1202.

4. JavajjiVeeraiah., P.V.N AravindSyam,.N.NagaDurga., K.RaviKanth., G.Vasudha,

    "Accelerometer Based Gesture Recognisation for Wheel Chair Direction Control Using ZIGBEE Protocol", International Journal of Technological Exploration and Learning (IJTEL), Vol. 2, No.2, pp.104-108, April 2016.

5. Shreedeep Gangopadhy., Somsubra Mukherjee, Soumya Chatterjee, "Intelligent Gesture

    Controlled Wireless Wheelchair for the Physically Handicapped", Proceedings of Fifth IRAJ International Conference, Pune, India, Vol.1, No.7, pp.47-52, 15 September 2016.

6. Moniruzzaman Bhuiyan, Rich Picking, "A Gesture Controlled User Interface for Inclusive Design and Evaluation Study of Its Usability", Journal of Software Engineering and Applications, Vol.4, No.9, pp.513-521, September 2016.

7. Aleksandra Pajkanovic, BrankoDokic, "Wheelchair Control by Head Motion", Serbian Journal of Electrical Engineering, Vol.10, No.1, pp.135-151, February 2013.