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HAND GESTURE CONTROLLED WHEEL CHAIR

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ABSTRACT

The aim of this project is to make a hand gesture-controlled wheel chair , using Accelerometer as a sensor to help the physically disabled people in moving from one place to another just by giving movements from the hand and also in any case they need any help from others there is a source of buzzer and in any case the wheel chair meets to any obstacle then the message goes to there family , friends or other . There are two components RF Module and ADXL335 , where transmitter sends the signals to receiver unit ,by that the receiver unit moves .If there is any obstacle in front of your wheel chair or when the wheel chair gets unbalanced then we get a message from GSM to our mobile phone. This wheel chair will add on comfort and make life of people bit easy. Today in India many people are suffering from disability, there are people whose lower half of the body is paralyzed. This Wheelchair will add on to the comfort and make the life of people bit easier.

Keywords: Arduino UNO, RF Module, Research.

I. INTRODUCTION

The aim of this paper is to prepare a Hand Gesture Controlled Wheelchair for the physically disabled people who face difficulty in moving from one place to another in day today life. These days joystick controlled wheel chair is available in the market whose cost range between Rs 80,000 to Rs 150,000. We have prepared this Hand Gesture Controlled Wheelchair in Rs 10,500. Based on data received the from accelerometer the microcontroller sends the signal accordingly to relays to move the wheelchair in forward, backward, left, right directions .This research paper is an advance approach of changing the physical gesture of hand into the electrical signal and then to process that signal into digital signal of appropriate magnitude and to be transmitted through the transmitter. This paper provides an instrumental solution to the people who have difficulty in moving or their body part has paralyzed, or they have lost their limb in an accident. This wheelchair is going to bring a paradigm shift between man and machine. Where this machine will be working on the user commands, we can also say its human machine interface. With the growth of technology there has always been an effort to use the technology for the betterment of mankind. Time and again the technocrats of the world had proved their metal in bringing the comfort to the people who are in need with the help of technology. Bringing the technology and economy parallel to each other is paramount aim of this paper. Also to build a Hand Gesture Wheelchair which has sound technology but low in cost is the primary concern. Today in this modern era around world's 10 percents, around 650 million people are suffering from physical disability.

- Another without needing anyone's assistance which alsomakes him self-dependent.

II. METHODOLOGY

These Block Diagram Represents the working of the wheel chair .We have two units transmitter and receiver unit .In the transmitter unit, the signals from the transmitter unit sends to receiver unit through radio frequencies and these frequencies helps the user to understand the methodology of wheel chair , very easily and conveniently

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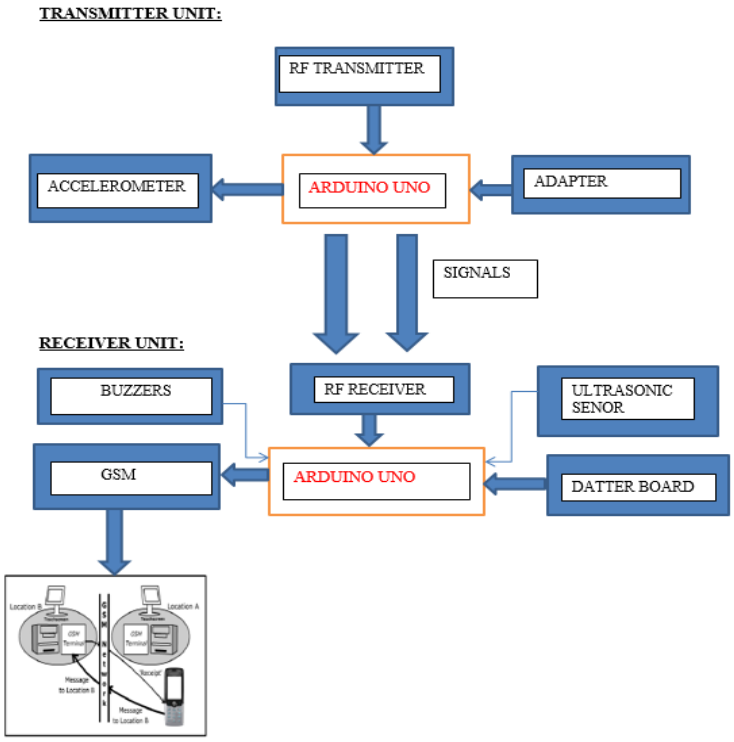

Figure 1: Block Representation

The above figure1, shows the block representation of the hand gesture wheel chair which helps to make movements and results in the output.

HARDWARE USED:

1. ULTRASONIC SESNSOR-Used to recognize the object.
2. ARDUINO UNO-Processing the result(microcontroller)
3. RF MODULE- Signals sent from Transmitter unit to Receiver unit.
4. ADXL335(ACCELEROMETER)-Tilt sensor used for motion, sensing and Behaviour.
5. L293D MOTOR DRIVER-Controls the motors in the wheel chair.
6. BUZZER-Releases the sound whenever there is need.
7. RPS UNIT-Regulated power supply
8. GSM-Global system for mobile communication

III. MODELING AND ANALYSIS

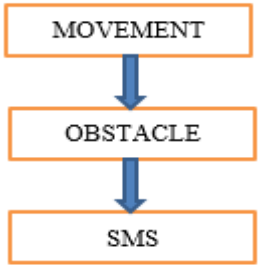

Figure 2: Flow chart

MOVEMENT:

The movement is done through Accelerometer sensor from transmitter unit , which helps the person to move from one place to another .

OBSTACLE:

The obstacle is recognized through ultrasonic sensor which again releases the buzzer sound so that the surrounding people can help the person

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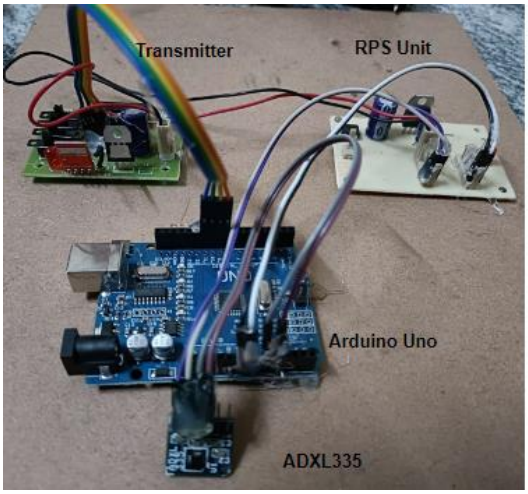
SMS (Short Message Service):

Through GSM if person did not get help from any out siders then the message is sent to the family members friends and relatives.

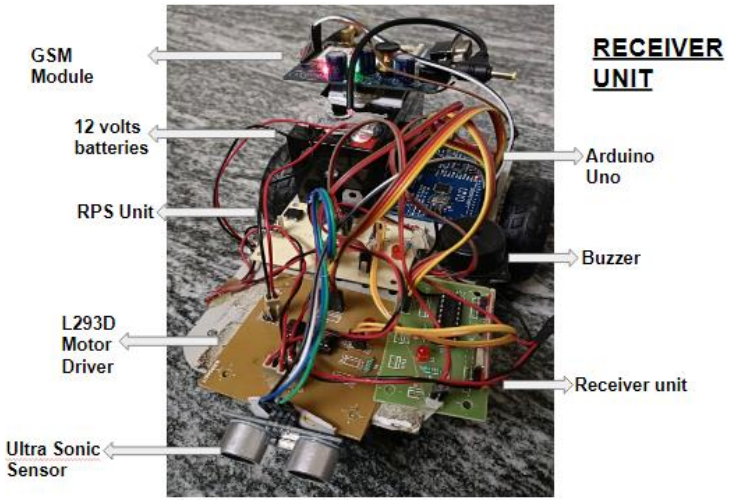
IV. RESULTS AND DISCUSSION

TRANSMITTER UNIT



These unit helps the user to command to the receiver unit

RECEIVER UNIT



Receiver unit helps the user to move from one place to another

Figure 3: Output

The above Figure3, shows the result of the transmitter and receiver unit where transmitter is used to command the receiver unit so that the receiver unit moves and if there is any obstacle then the message is been sent through GSM module.

V. CONCLUSION

Hand Gesture Controlled Robot System gives a more natural way of controlling devices. The command for the robot to navigate in specific direction in the environment is based on technique of hand gestures provided by the user. Without using any external hardware support for gesture input unlike specified existing system, user can control a robot from his software station.

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