Abstract

Nowadays most of the robots are controlled in many ways like using sensors, using voice commands and mobile phones. All of those things increased the complexity of the system in terms of its software and hardware parts.

The idea of the project was to develop a hand gesture robot that is simple and low cost in nature and intended to assist and can serve individuals with special needs or disability. The robot can move by using our hand to control its direction to move to the left, right as well as forward and reverse direction. In this way, we can use it for serving purposes in our homes, in restaurants and other facility that the robot can be utilize and serves its main purpose.

Keywords
- Robot
- Arduino
- Transmitter
- Receiver
- Bluetooth
- Hand Gesture
1. Background

These types of projects will be very helpful in our vision 2030 because in the future many robots will be active in the market. In the future we will use robots in every operation to make our life more comfortable and easy. The robot can be used in many places to give services and make it faster with less cost. In many countries, the robot has become part of human life.

Our decision to make a Hand Gesture Smart Robot will able to facilitate and accelerate many things in society. It can be used in hospitals, shops and restaurants. Many people will benefit from this project, the idea, the fun and usefulness.

2. Objectives

For the purpose of making our life more comfortable many project are developed and being in the market so we decide to make something that can be useful and new to help achieve the goal.

3. Methodology

In this project, accelerometer reads the X Y Z coordinates when we make gestures by hand and send the X Y Z coordinates to the Arduino (here we don’t need the Z axis we need only two coordinate, X and Y) The Arduino checks the values of coordinates and sends a 4 bit code to the Encoder IC. The Encoder passes the data to RF transmitter and the transmitted data is received by the RF receiver. The receiver sends the 4 bit code to the Decoder IC and the decoder passes it goes to Motor Driver IC. Later the motor driver makes the decision to turn the two motors in the required direction.

4. Results and Analysis

A lot of prototypes and tests were made to determine the final design of the project. Prototypes were made to make each output component to function individually before combining them for the final product. Tests were made to determine the best sensitivity setting for the ADXL335 accelerometer sensor by measuring the output of sensor pins comparing with the movements of the robot. After doing tests, the group was able to configure the device and calibrate it to be ready for any user. Determining the output of the sensor pins after we connect all the circuit with the normal values will determine the best configuration for the user. The device is now ready for use and can detect X Y coordinates when we make gestures by hand with accurate sensitivity.

5. Conclusion

For the purpose of making our life more comfortable many projects are developed and being in the market so Hand Gesture Smart Robot is the device that can help and serve. People sometimes suffer from various diseases or conditions that may hinder them from performing work. The robot never becomes ill or need rest. Also the robot will take the request without awful response. The main function of Hand Gesture Smart Robot is to deliver in less time and effort. It can be used in hospitals and restaurants in its current form and if developed more may be used in industries and companies and this will increase productivity for users.
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