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Humanoid Robot using Robotic Arm

R. Babu[1], S. Balamurugan[2], M. Eraghavendran[3], R. Gowtham[4], C. N. Marimuthu[5]
[1, 2, 3, 4]*Dept of Electronics and Communication Engineering, Nandha Engineering College(Autonomous),Erode, Tamil Nadu, India.*
[5]*Professor & Dean (R&D), Dept of Electronics and Communication Engineering, Nandha Engineering College(Autonomous), Erode, Tamil Nadu, India.*

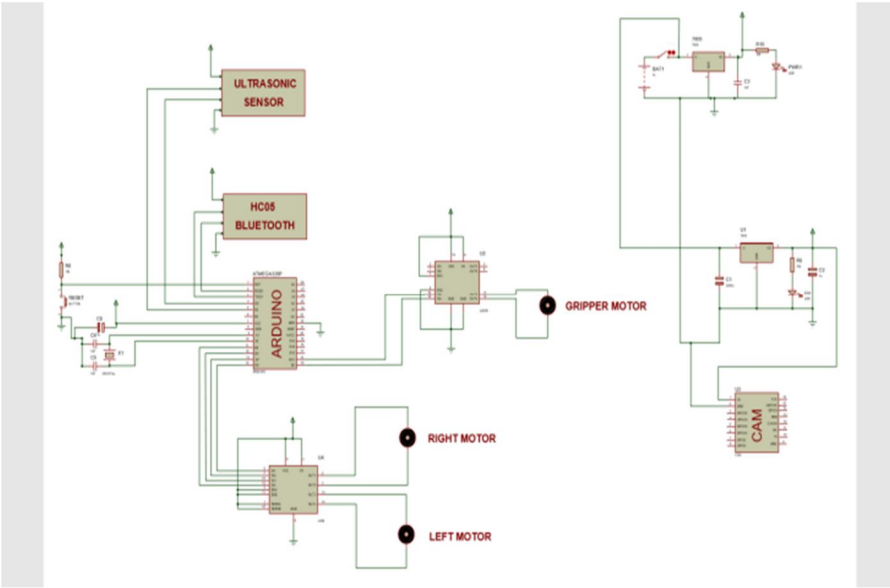
Abstract: ***The use of robots has meanwhile shifted from industry to everyday life. Using voice commands to control the robot is much easier for home and industrial users. The humanoid robotic system has proven to be very useful in crowded areas. the risk of illustration people . This project suggests using an Android mobile device to control a robot using voice commands. The integration of the control panel to a Bluetooth device is achieved through the use of a Bluetooth module to capture and read the voice commands. The robotic car works on a command received via an Android device. For this, Arduino is integrated into the system. The control device can be any smart phone with an Android application. The transmitter uses an Android app to transmit signal and the receiver side reads the commands and interprets them to control the robotic vehicle. The android APP sends commands to move the car forward, backward, left and right. Upon receiving the commands, Arduino controls the motors to move the car in four directions.***

The communication between the Android device and the receiver is transmitted as serial communication data. The Arduino program is used to move the motor through the motor driver circuit according to the commands sent. The wireless camera connects to the robot head for surveillance. Using the robot, the robot can wirelessly transmit live broadcasts with night vision functions. A robotic arm is mounted on the front of the system for the purpose of choosing and placing. An obstacle detector is added to protect the system from obstacles on the way using an ultrasonic sensor.

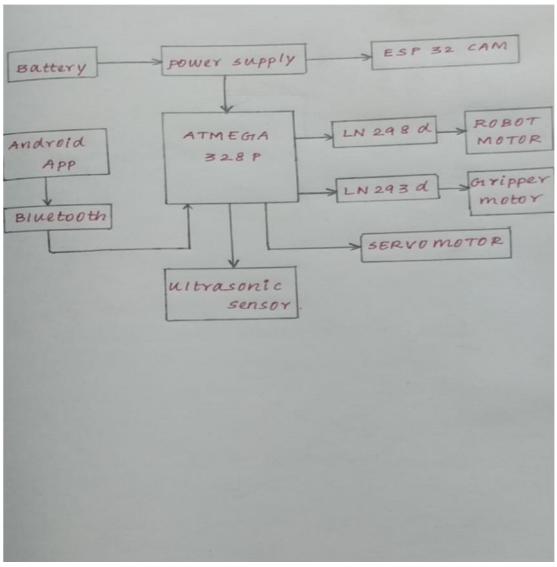
I. INTRODUCTION

The use of humanoid robots in the present day has moves from industries to the normal day to life. The use of voice commands to control a robot is much easier for domestic as well as industrial users. Humanoid robotic system is very beneficial in areas where there is high risk for humans to enter. This project suggests using an Android mobile phone to control a robot using voice commands. The robot is useful in places where people are difficult to reach**,** but it hears a human voice. In areas affected by natural disaster and fire high risk areas. The robot can be used as a toy and used to transport and place small objects. The idea behind this project is to save people who need help due to natural disasters. The main goal of the project is to control the robot with a voice or a joystick. The purpose of a humanoid robot using a robotic arm is to hear and respond to commands received from the user.

A. Circuit Diagram



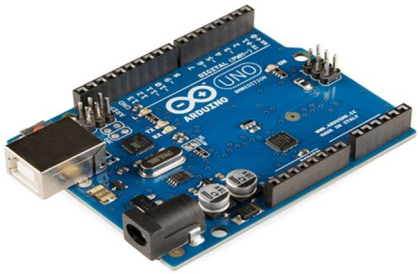
B. Block Diagram



Blockdiagram Description

C. Arduino Uno

Arduino PIC type microcontroller is commonly used in programming and software**.** Recentl**y** Arduino has become very popular in the world. It builds on previous Arduino wiring and processing projects. The process was not written for any programmer. Arduino wiring is done according to the programming language. What the**y** both have in common is that **t**hey provide an environment in which even basic knowledge of electronics and programming can be easily de**v**eloped**.** Arduino is becoming in**c**rea**s**ingly common nowadays. Even unmanned aerial vehicles made with Arduino, which is used almost all field**s,** they are visible.



*D. HC-05 Bluetooth **module***

The HC-05 BT module is a slave that operat**es** only and uses a serial communication protocol. In Bluetooth communication, the master and the slave are determined according to the start state of the connection. **A** master module can start the connection, but the slave module cannot **s**tart the connection.In our project we will provide an external device f**o**r connection to a slave PC or an **A**ndroid device. Bidirectional data can be sent and received normally.

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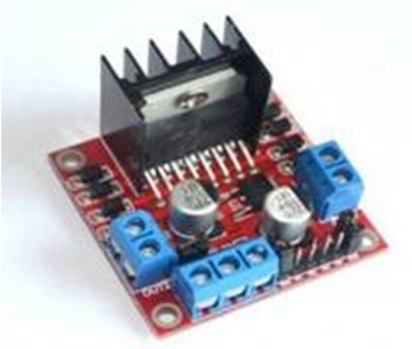
E. Servo Motor

Servo detects the operation error of a mechanism, provides feedback and corrects faults. The servo motor can have alternating current (AC), direct current (DC) or stepper motors. Servo motors are the kinds of motors that can fulfil the commands we want. They can operate steadily even at very small or very large speeds. In these motors, the large moment can be obtained from the small size. Servo motors are used in control systems such as fast operation, excessive axis movement, condition control and so on. Servo motors are the last control element of a mechanism. Suppose, a motor is connected in a robot for movement its arms or hands. So if the motor is rotating more than the requirement, the robot cannot be work properly. Servo motor always works in a closed-loop system. A regular motor always rotate in 360 degrees but servo motor can rotate in 0 to 180 degree.

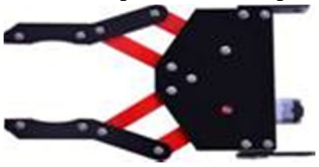
F. 5DC Motor Driver LN298

The L298N is a dual H-Bridge motor driver which allows speed and direction control of two DC motors at the same time. The module can drive DC motors that have voltages between 5 and 35V, with a peak current up to 2A.



G. Robotic Arm

The robotic arm is an excellent robotic gripper for development of any robotic arm project without spending a lot of money. It is best suitable for pick and place type robots and it can also be used for other robotic and IOT project. It has a wide operating voltage range 5-12V. It is best suitable for object size up-to 11 cm. It has low power consumption and high torque.



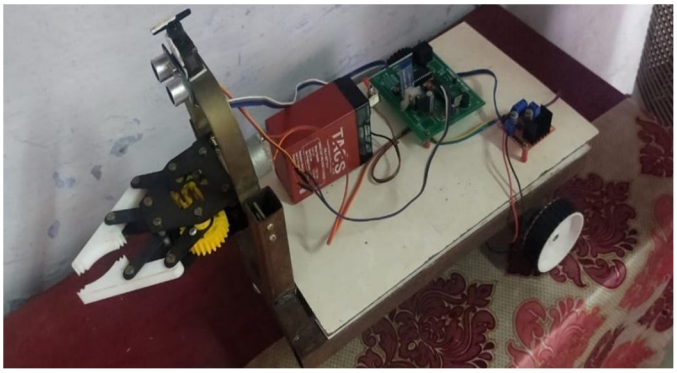
H. Wireless Camera

The wireless camera has a night vision which enables no light or low light usage. It performs high-quality picture transmitting and receiving.

I. Software Specifications

The Android application Arduino Voice Controller is an open source code consisting of a Bluetooth module that can be used to start a robot and control a humanoid robot**.** Speech recognition is used to identify the spe**a**ker**.** Speech recognition analyzes speech characteristics that differ from person to person. Each of them has a unique speech pattern based on their anatomy (size and shape of mouth and voice, pronunciation style, accent, etc.). speech recognition applications are v**er**y different from speech recognition applications**.** Most commonly, **s**pee**c**h recognition technology is used to verify th**e** identity of a speaker or to identify an unknown speaker. Speaker verification and speaker identification are two common types of **s**pee**c**h recognition. The **s**peaker test us**es** a person's voice to t**es**t who they are. Basi**c**ally, a person**'s** voice is used as a fingerprint. Aft**e**r a sample of hi**s** speech is recorded, the person**'s** speech samples are ch**e**cked against the database to d**e**termin**e** if hi**s** voice matches the claimed identity. **S**peaker verification is most commonly used in situations where secure access is r**e**quired. Th**ese** systems work with the knowledge and collaboration of the u**s**er**.** **A**n unknown speaker i**s** identified during speak**e**r identification. In contrast to speaker verification, speaker ID is usually converted and executed without the knowledge of user.

II. RESULT



The result can be viewed in the form of Humanoid Robot Using Robotic Arm. In this case, it is determined that the final result of the project.

III. .DISCUSSION

The end result of using a humanoid robot with a robotic arm will help people e**sc**ap**e** the disaster area when the rescue team cannot interv**e**n**e** within the appropriate perimeter of the **s**ite

IV. CONCLUSION

The finished product of our project is helps to rescue the people in the danger situation.

V. ACKNOWLEDGMENT

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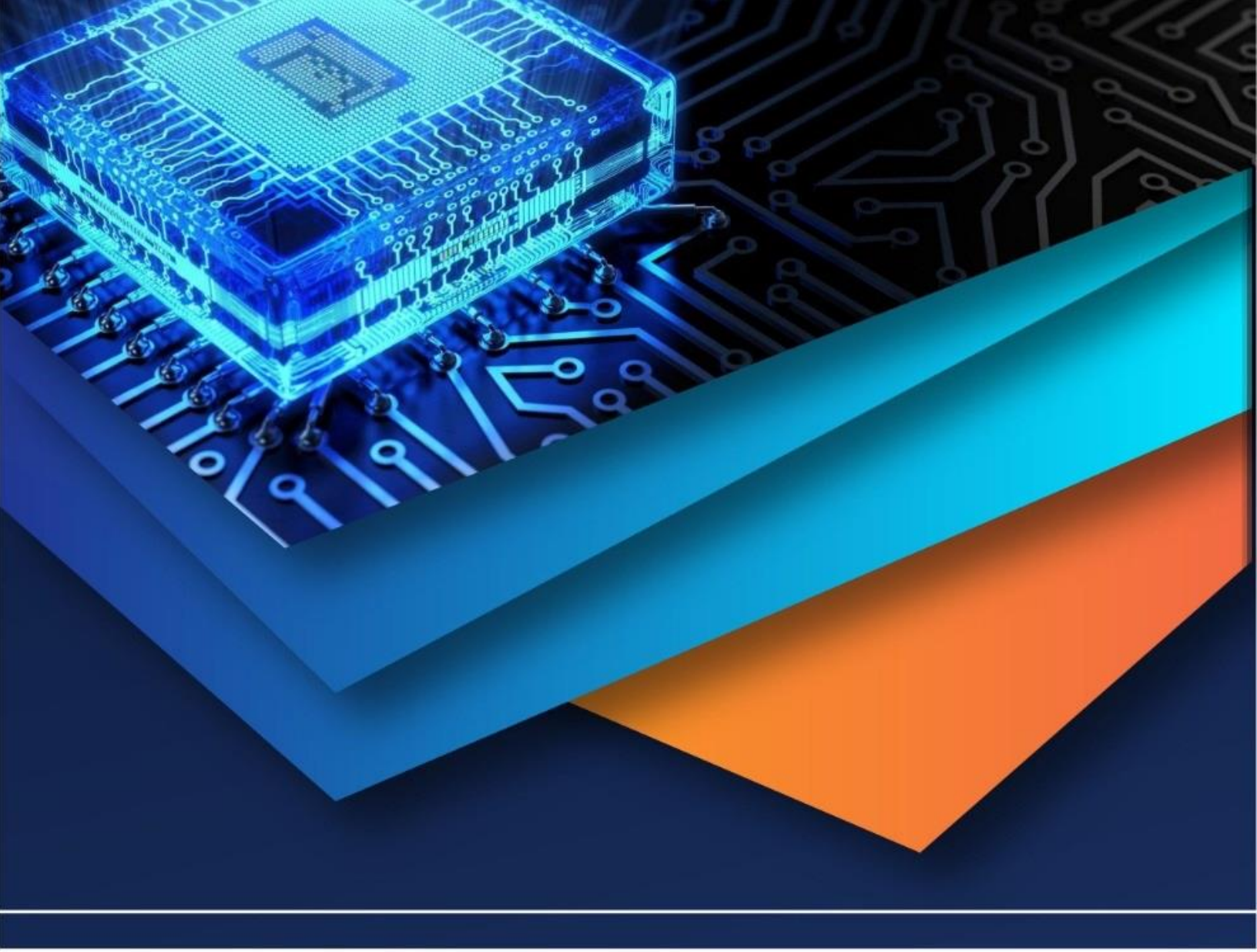

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