School of Engineering and Applied Science,

Ahmedabad University

ANDROID PHONE CONTROLLED ROBOT

TEAM MEMBERS :	**ROLL NO:**
Yesha Shastri	1741035
Devshree Patel	1741075
Muskan Matwani	1741027
Naishi Shah	1741033

Motivation:

Robots are gadgets which can be programmed by the humans in order to give them human-like abilities. Since humans cannot always be accurate in performing certain tasks, robots can be useful to provide us with unbiased and accurate results. In the areas where human intervention is not possible like, in military surveillance, use of robots becomes a necessity. Robots in the agricultural sector will be of great help to the nation. Looking at the magnificence of the applications of the robot and the ease of availability of the Android technology motivated us to think of developing a robot which will be useful in the real-life scenario.

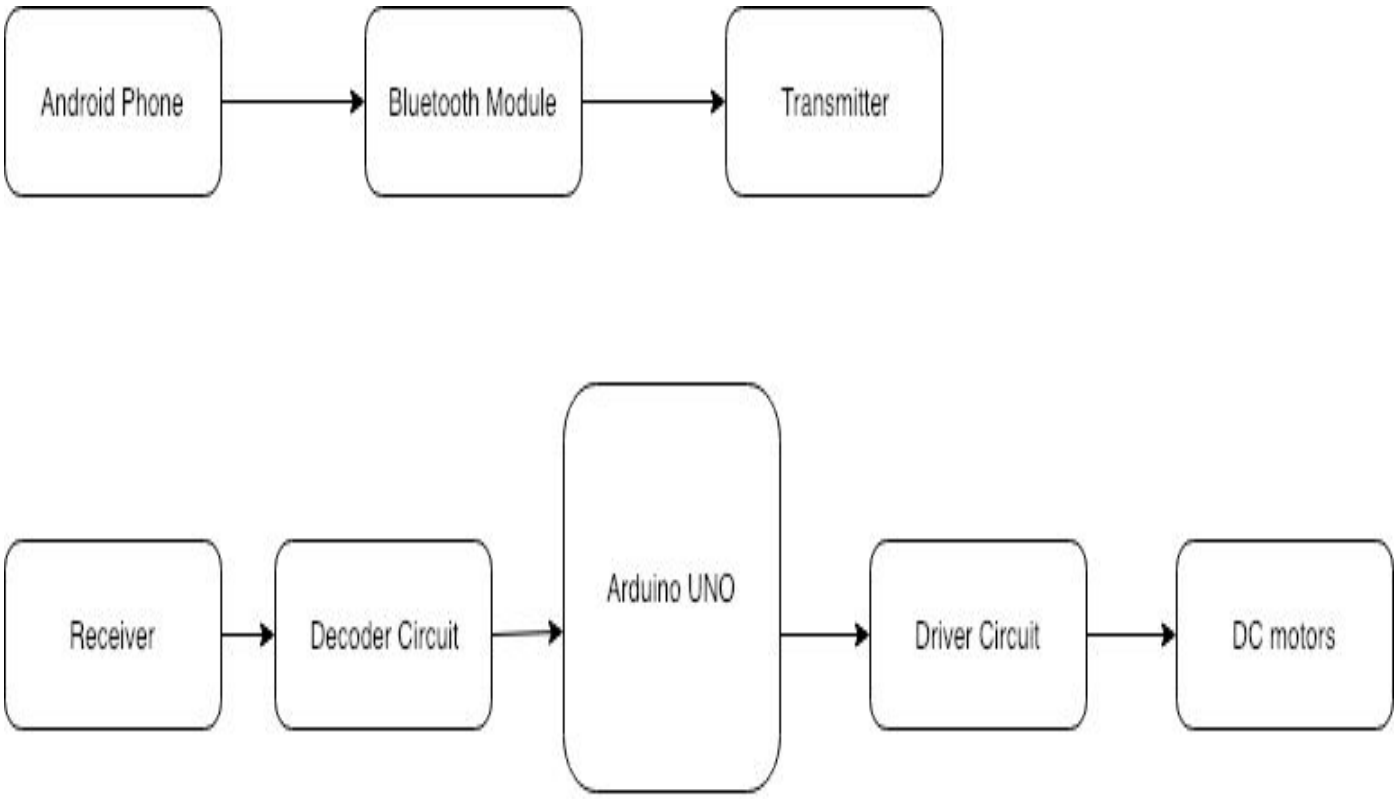
Description:

The system will work on the control commands sent by the app. The commands could either be in the form of touch on the app screen or by the speech. These commands will be received by the Bluetooth module attached to the robot. The received data would then be passed on to Arduino which will further send instructions to the motor driver. The motor driver will amplify the low-current control signal to high-current control signal for the purpose of driving the motors. Ultimately, the motors will make the robot move in desired directions. In return, the robot also sends back information regarding the distance from the closest obstacle to the phone and if it reaches very close to a certain obstacle it will automatically stop.

Final Outcome:

The robot will be able to move in forward, backward, left and right directions. The user will also be able to control the speed of the robot through the app interface. Speech commands could be from (forward, backward, left, right and stop). The spoken commands will be visible on the app screen. Hence, it will result in a full-fledged Android phone controlled robot ready for the addition of features in future to work for real-life applications.

BLOCK DIAGRAM :

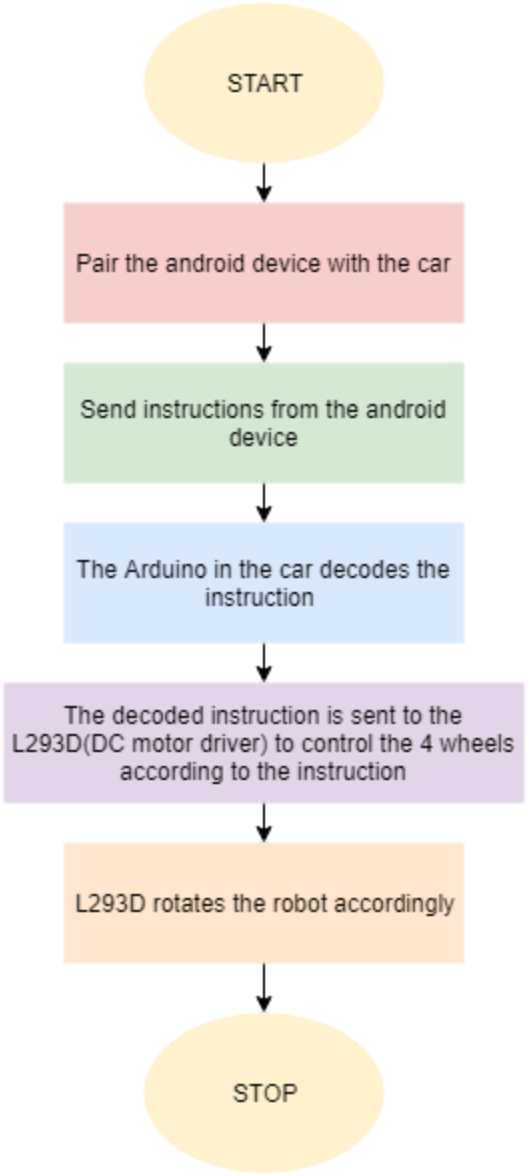


Block diagram of Proposed System

COMPONENTS REQUIRED :

1. 1 X Arduino Uno R3 Board
2. 4 X Chassis 4WD with DC Motor and Wheel
3. 2 X Motor Driver L298N
4. 1 X Bluetooth module HC-06
5. 2 X Li-ion battery 18650
6. 4 X LEDs + resistors 220 Ohm
7. 1 X Buzzer
8. Connecting wires

FLOWCHART :


START
Pair the android device with the car
Send instructions from the android device
The Arduino in the car decodes the instruction
The decoded instruction is sent to the L293D(DC motor driver) to control the 4 wheels according to the instruction
L293D rotates the robot accordingly
STOP

TIMELINE OF THE PROJECT :

TASK	FINISH DATE
Selection of project topic and preparing list for components required	07/02/19
Understanding the working of components	13/02/19
Integrating all components and finalizing the circuit design	25/02/19
Updating report 1 to submit report 2	5/03/19
Writing a primary code to dump on the system	10/03/19
Debugging the code	15/03/19
Submission of report 3	19/03/19
Making android application and integrating the app with Bluetooth module	25/03/19
Integrating the final project and prepare the presentation	30/03/19
Final presentation	06/04/19