DESIGN AND DEVELOPMENT OF A BLUETOOTH-BASED APP CONTROLLED VEHICLE: AN EXPERIMENTAL STUDY

FINAL PRESENTATION

CN LAB PROJECT

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MANIPAL INSTITUTE OF TECHNOLOGY
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INTRODUCTION

NEED FOR THE PROJECT

Increased convenience:

With the ability to control a vehicle remotely users can operate the vehicle from a safe distance without the need to be physically present. This can save time and increase convenience, especially in situations where it may be difficult or unsafe to control the vehicle manually.

Remote access & enhanced user experience:

The use of a mobile application to control a vehicle brings about a whole new driving experience. It allows users to experiment with new features and control the vehicle in innovative ways, which can make driving more fun and engaging.

Improved safety:

Bluetooth-based app-controlled vehicles can be designed with safety features that minimize the risk of accidents or injuries. For example, the app could include sensors that detect obstacles or alert the user when the vehicle is moving too fast or too close to an object.

Evolving technology – Self-driving vehicles:

Bluetooth-based app-controlled vehicles can be designed with safety features that minimize the risk of accidents or injuries. For example, the app could include sensors that detect obstacles or alert the user when the vehicle is moving too fast or too close to an object.

OBJECTIVES

BASIC DESIGN / OBJECTIVE

- This project uses Arduino uno to give required outputs based on the input (wireless) received from the user through a Bluetooth module.
- The basic objective of a Bluetooth-based app-controlled vehicle is:

1. To enable users to control a vehicle remotely through a mobile application.
2. To provide a more convenient and accessible way of controlling a vehicle.
3. To allow users to operate a vehicle from a safe distance, without the need to be physically present.

METHODOLOGY

COMPONENTS

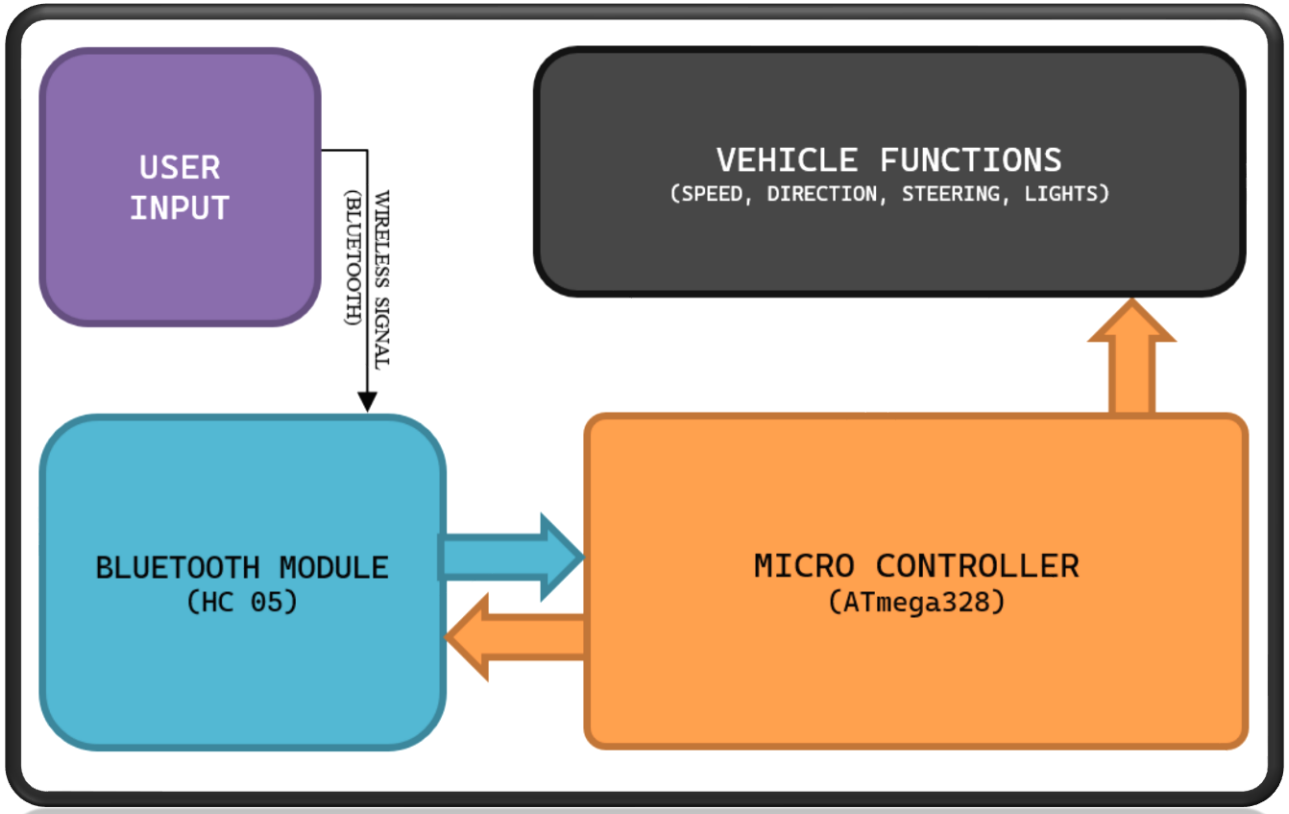
HARDWARE

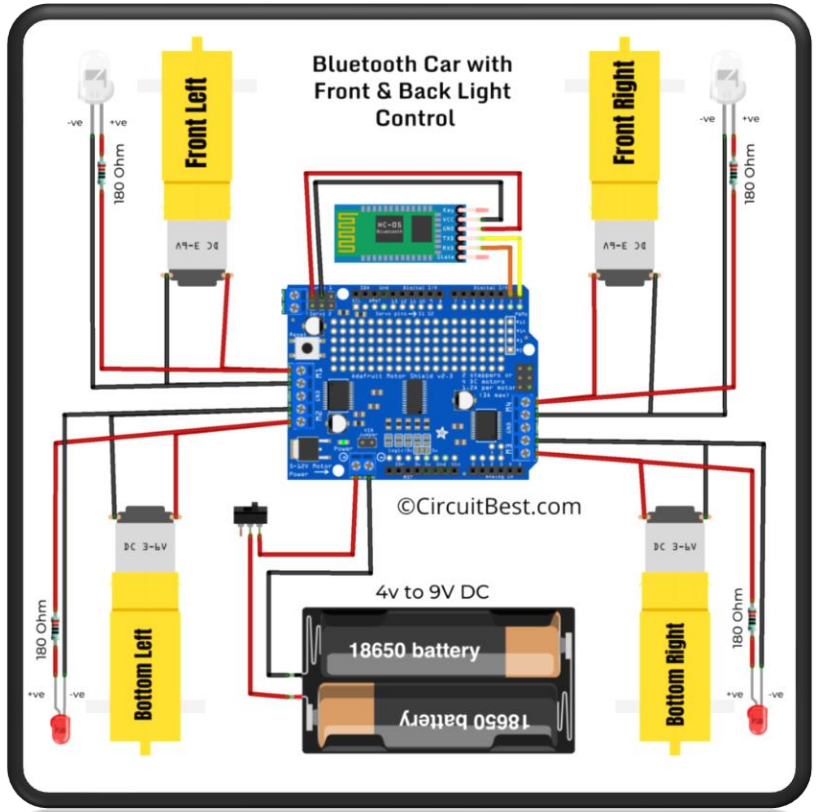
- **Arduino Uno microcontroller** – 1N4007 (4)
- **Bluetooth module** – HC05
- **Motors** - TT gear motors (4)
- **Resistor** – 220 ohms resistor
- L293D Driver shield
- 2 LED's (Red)
- 4 wheels
- 3800mAH 3.7V Lithium-ion battery
- Connecting wires (Jumper wires)
- Android phone (Control)
- *Soldering equipment*

SOFTWARE

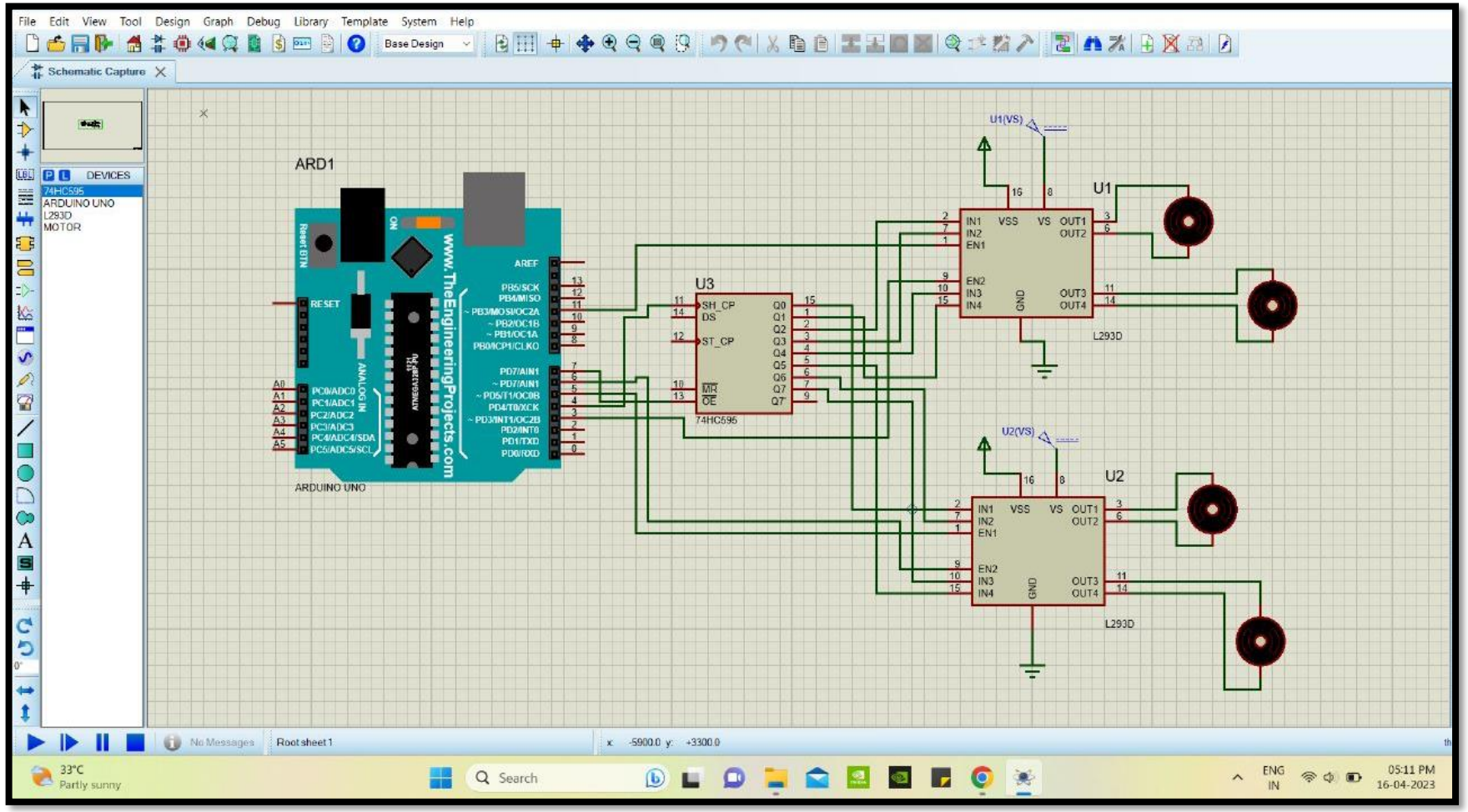
- App development tool – MIT app inventor
- Bluetooth controller app (Android app)
- Proteus

BLOCK DIAGRAM





CIRCUIT DIAGRAM – PROTEUS

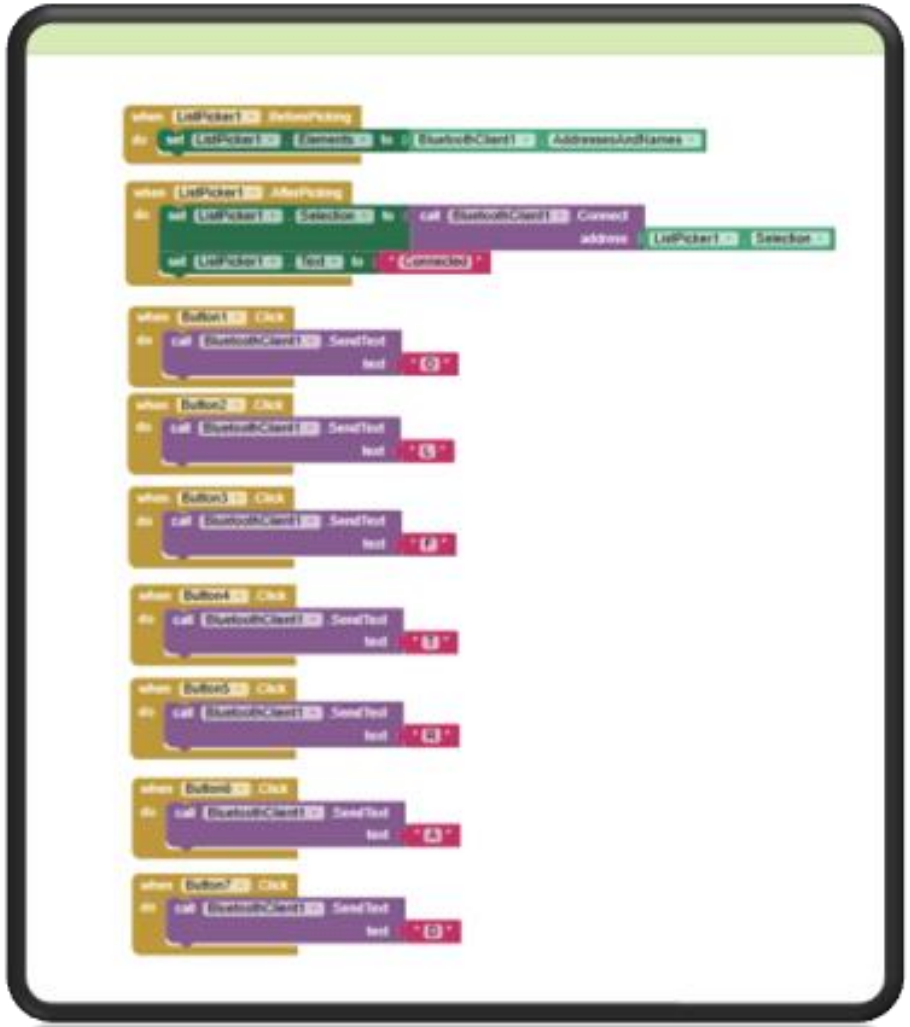


BLUETOOTH APP

- The custom Bluetooth app was developed using the MIT app inventor.
- The app sends data (letter) in the UART protocol.
- The data sent will be transmitted to the microcontroller and decoded to perform the desired function.
- The control functions have been programmed in the configuration shown in the table

BUTTONS	SENT COMMANDS
Forward	**F**
Reverse	**R**
Right turn	**D**
Left turn	**A**
Increase speed	**G**
Decrease speed	**B**
Turn ON headlights	**O**
Turn OFF headlights	**L**

USER INTERFACE & BACK END



THANK YOU

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