PRESENTATION ON

Ri-MEDI : A Telemedicine Robo Car

PRESENTED BY

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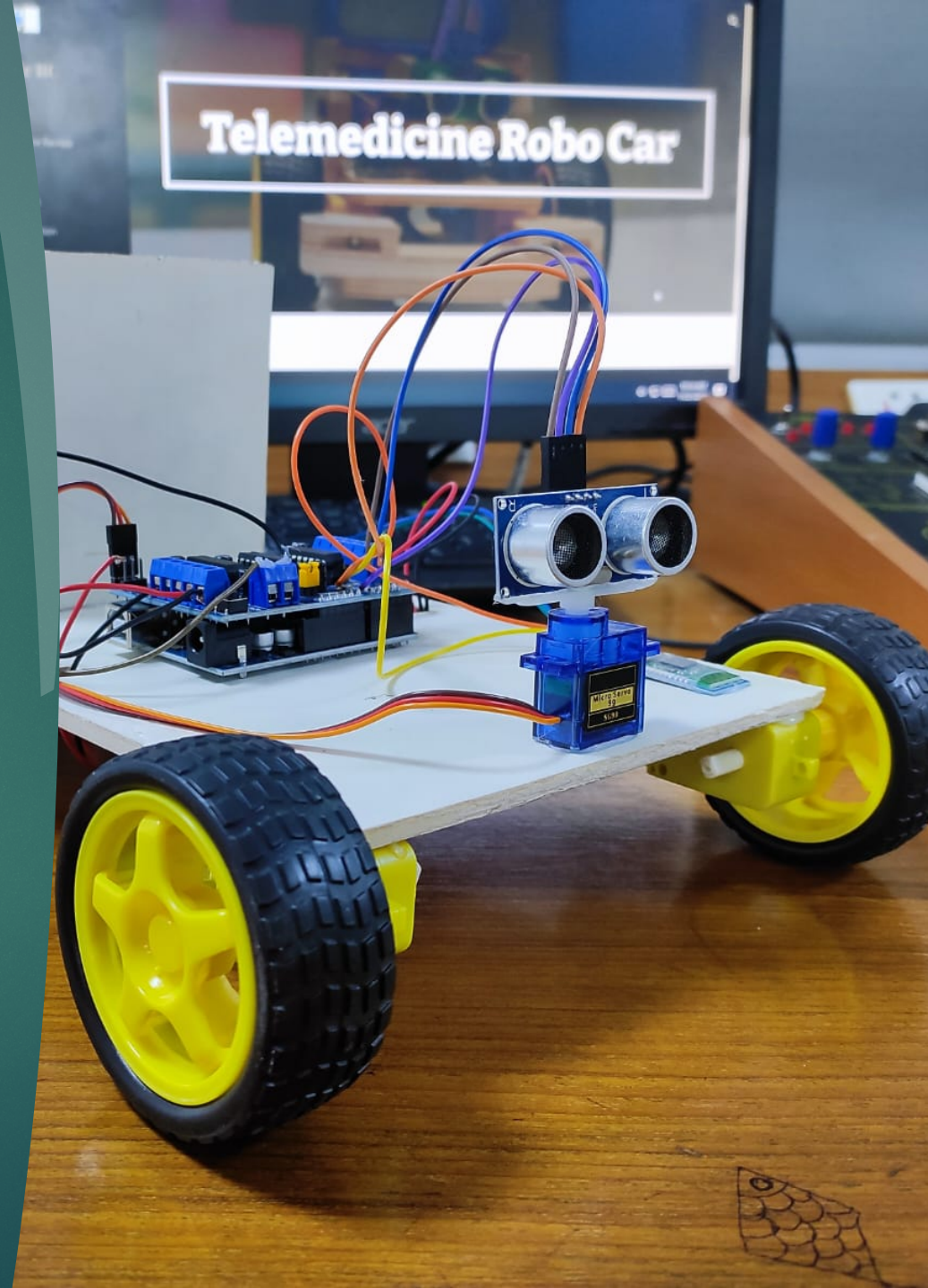


OUTLINE OF THE PRESENTATION:

- Objectives
- Introduction
- Working Method
- Description of the work
- Result and Discussions
- Conclusions
- Future Works

OBJECTIVE

- Improve access to healthcare
- Reduce healthcare costs
- Improve patient outcomes
- Enhance medical education
- Increase efficiency
- Improve continuity of care
- Provide personalized care
- Enhance patient satisfaction

INTRODUCTION

Telemedicine Robo Car is an innovative technology that combines telemedicine and robotics to provide remote medical services. In this presentation slide, we will discuss the previous work and literature survey related to telemedicine and telepresence robots, as well as the motivation behind developing Telemedicine Robo Car.

Previous works related to telemedicine and telepresence robots have shown that these technologies have the potential to improve access to healthcare, reduce healthcare costs, and enhance patient outcomes.

INTRODUCTION

A literature survey on the use of telemedicine and telepresence robots in healthcare settings has shown that these technologies can be used for a variety of applications, such as remote diagnosis and treatment, medical education and training, and remote monitoring of patients.
Therefore, the motivation behind developing Telemedicine Robo Car is to address some of these challenges and provide a more efficient and cost-effective way to deliver medical services remotely.

Previous Work - RELEVANT PROJECTS :

VICI

Features:
1. Automatic bandwidth & video quality optimization
2. Ability to transmit HD video
3. 24/7 remote support & monitoring

AETHON TUG EXCHANGE AUTONOMOUS MOBILE ROBOT

Features:
1. Strong & flexible with a payload capacity of up 1400 ibs.
2. Remote & cloud monitoring
3. Intuitive self-service tools

Vantage

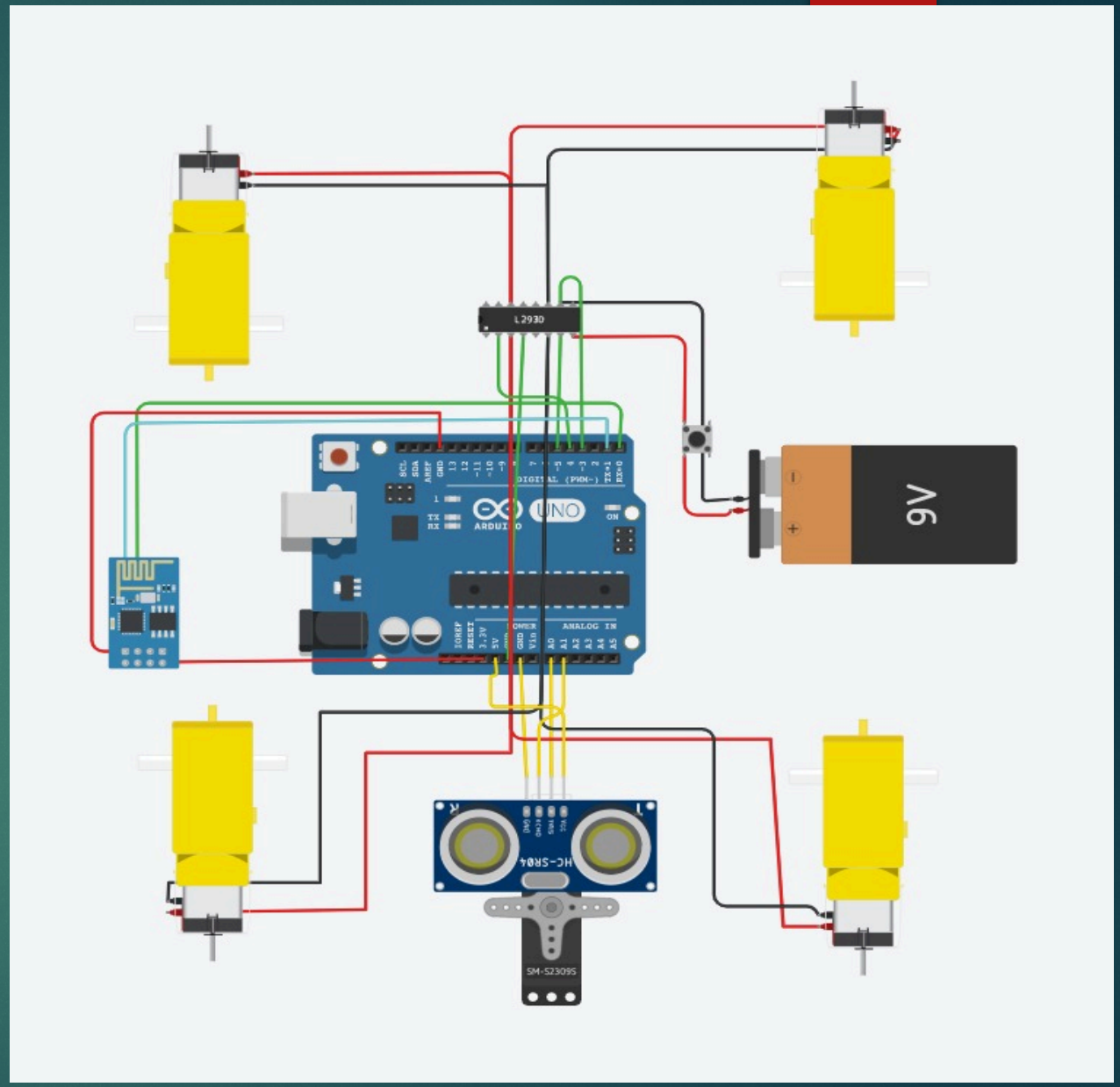
Features:
1. Consultation with provider
2. Routine medical follow-up visit
3. Certain physical therapy & speech language pathology

WORKING METHOD

1. BLUETOOTH CONTROL

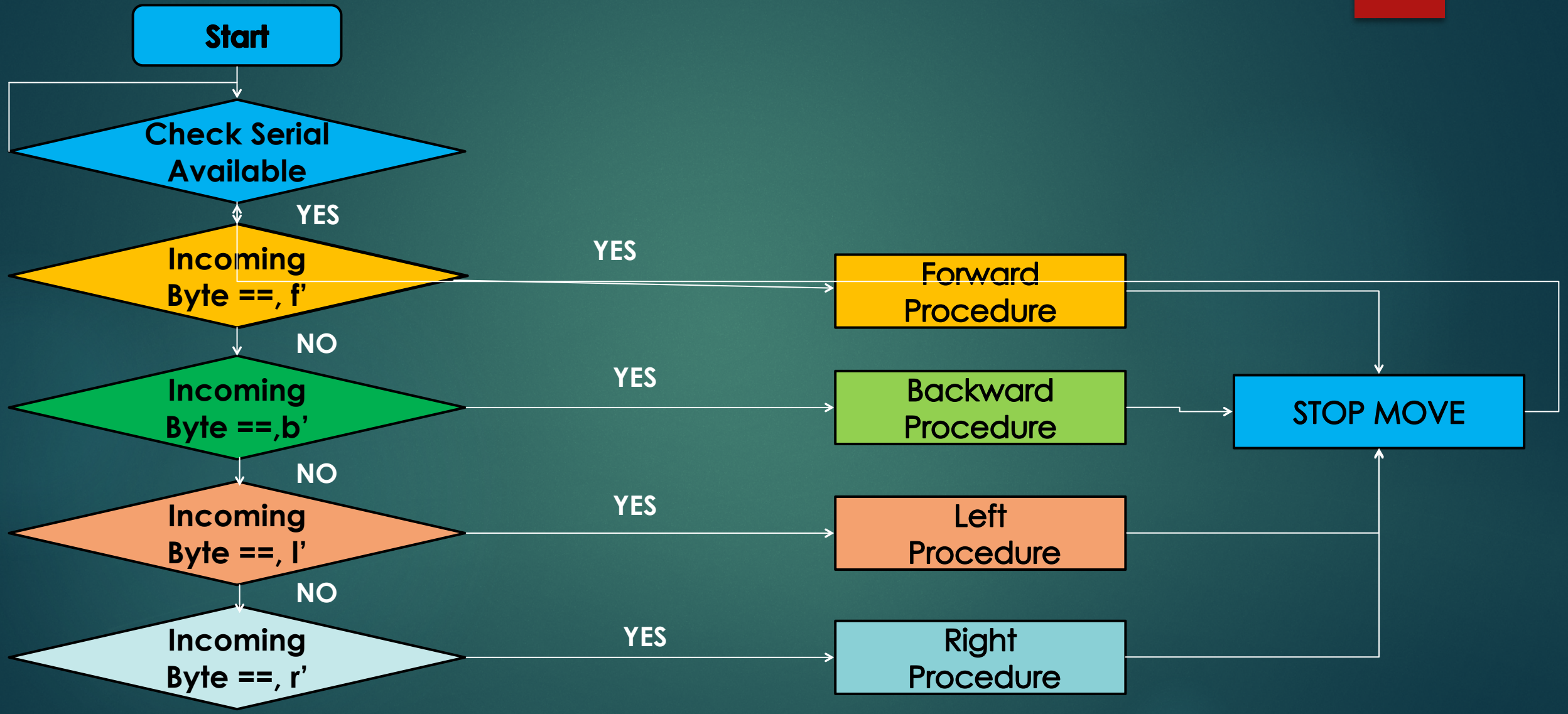
2. GESTURE CONTROL

3. OBSTACLE AVOIDANCE

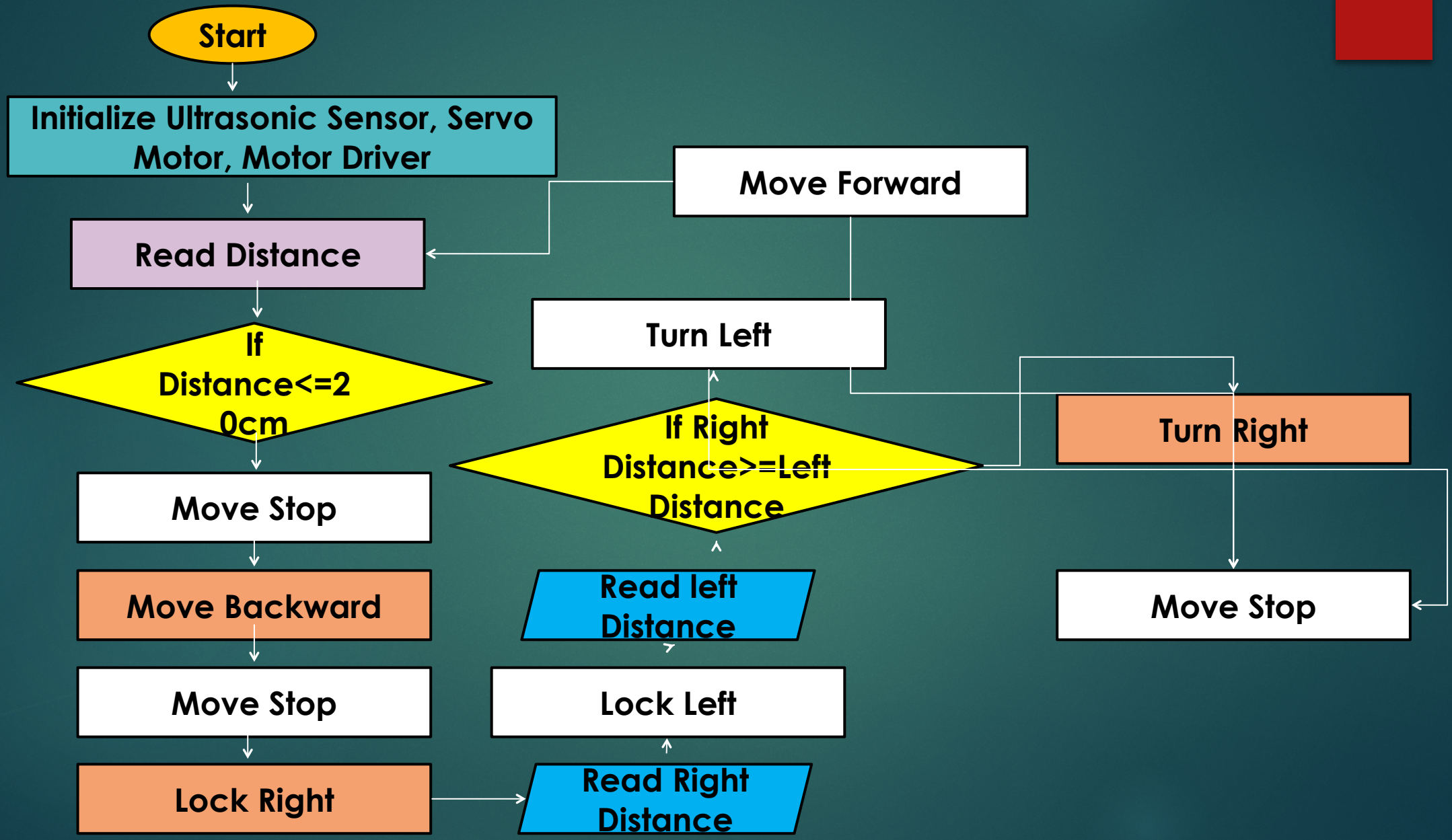


Simulation

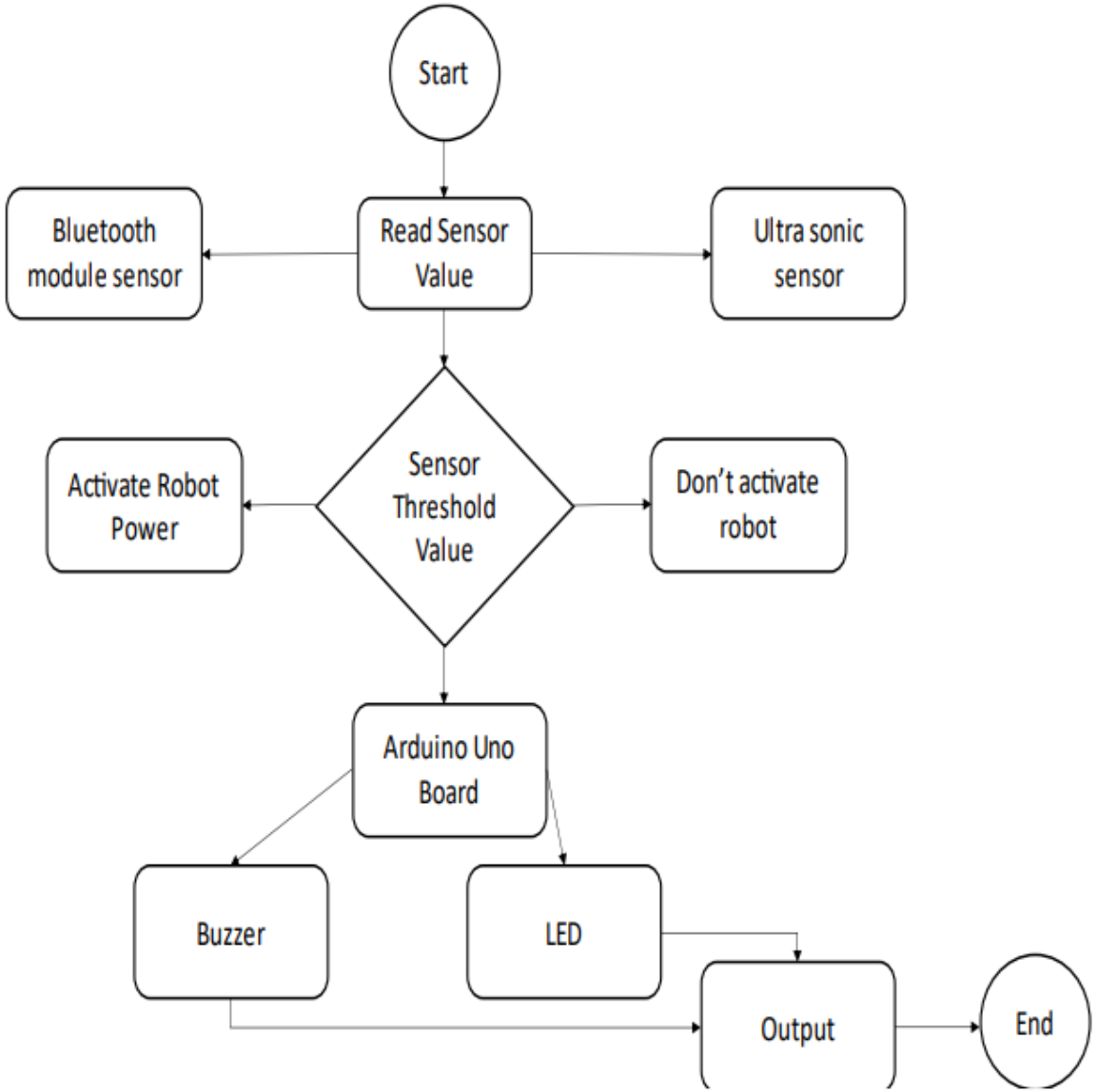
Working Method : Bluetooth Control



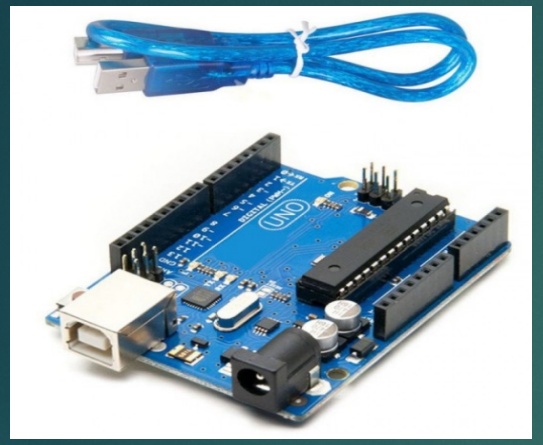
Working Method : Obstacle Avoiding



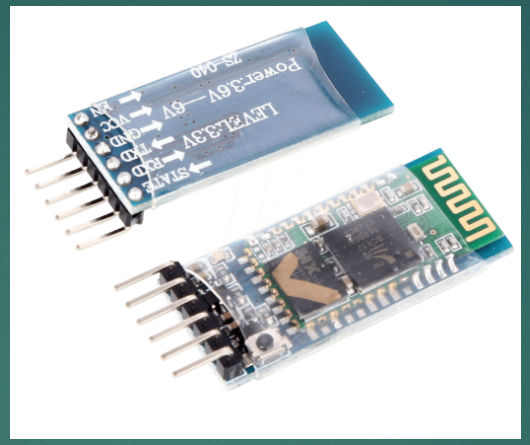
Block Diagram



Description of the work – Hardware Component

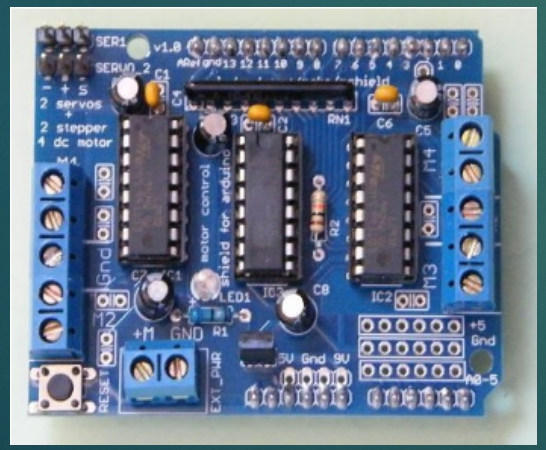


Arduino Uno R3 With Cable



Arduino Bluetooth Module HC-05

Micro Servo SG90



Motor Shield L293D

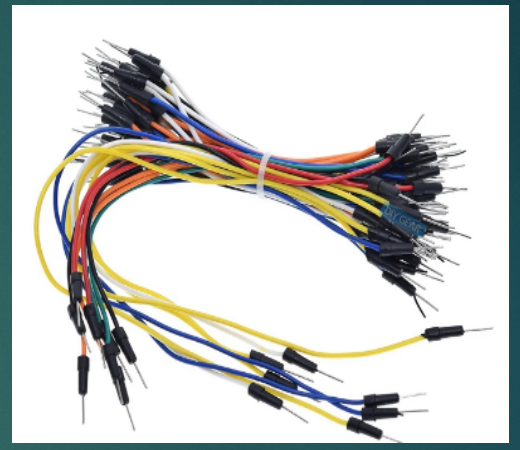
ULTRASONIC SONAR SENSOR HC- SR04

4x Geared Motor

Description of the work – Hardware Component

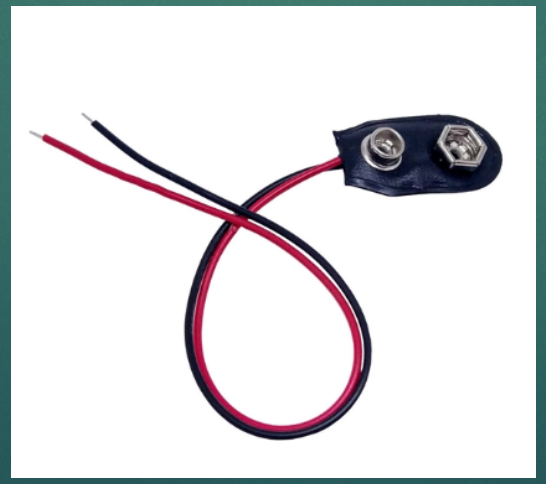
4x YELLOW PLASTIC MAG WHEEL SOFT TYRE

9V BATTERY



JUMPER WIRE MIX SETS

SWITCH



9V BATTERY CONNECTOR

FOAM BOARD

Description of the work – Coding Details

Language : C++

Library Files :
1. **Servo.h**
2. **AFMotor.h**

Functions :
1. **Obstacle()**
2. **Bluetoothcontrol()**
3. **Voicecontrol()**
4. **Ultrasonic()**
5. **Loop()**

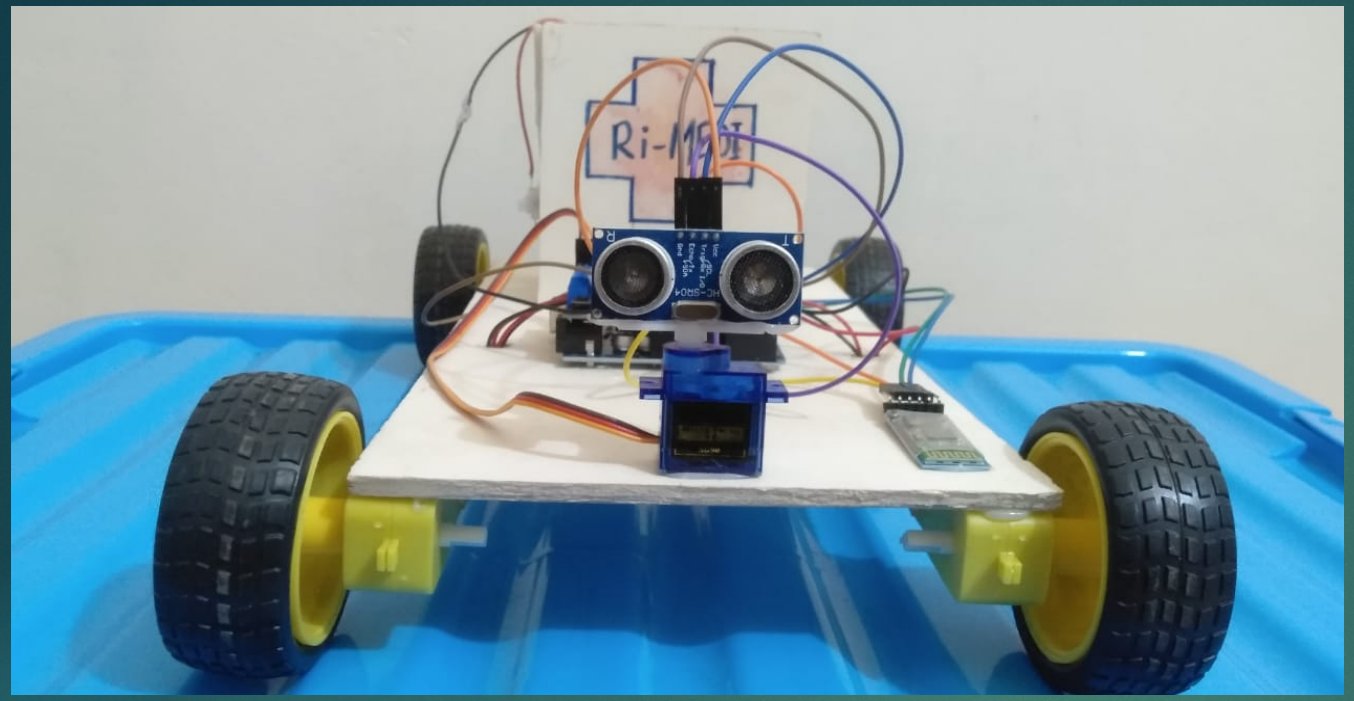
Tele RC Robo Car.ino

```
1   #include <Servo.h>
2   #include <AFMotor.h>
3   #define Echo A0
4   #define Trig A1
5   #define motor 10
6   #define Speed 170
7   #define spoint 100
8   char value;
9   int distance;
10  int Left;
11  int Right;
12  int L = 0;
13  int R = 0;
14  int L1 = 0;
15  int R1 = 0;
16  Servo servo;
17  AF_DCMotor M1(1);
18  AF_DCMotor M2(2);
19  AF_DCMotor M3(3);
20  AF_DCMotor M4(4);
21  void setup() {
22    Serial.begin(9600);
23    pinMode(Trig, OUTPUT);
24    pinMode(Echo, INPUT);
```

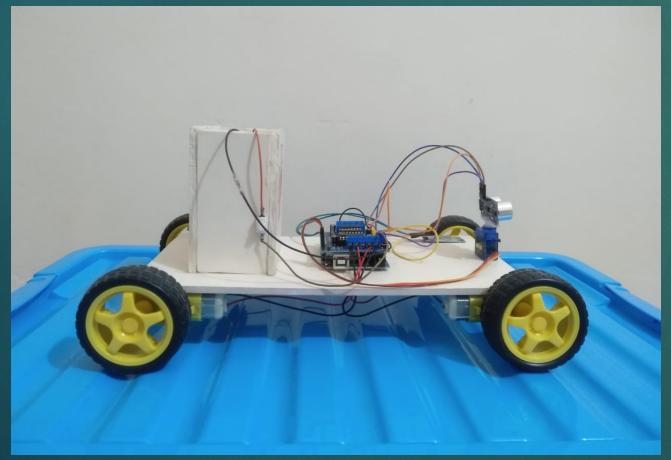
```
80  void Voicecontrol() {
81    if (Serial.available() > 0) {
82      value = Serial.read();
83      Serial.println(value);
84      if (value == '^') {
85        forward();
86      } else if (value == '-') {
87        backward();
88      } else if (value == '<') {
89        L = leftsee();
90        servo.write(spoint);
91        if (L >= 10 ) {
92          left();
93          delay(500);
94          Stop();
95        } else if (L < 10) {
96          Stop();
97        }
98      } else if (value == '>') {
```

CODE SNIPPETS

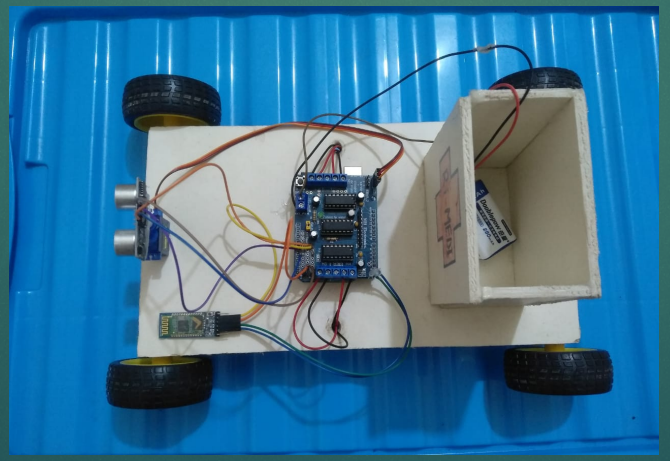
Result of Telemedicine Robo Car



FRONT VIEW

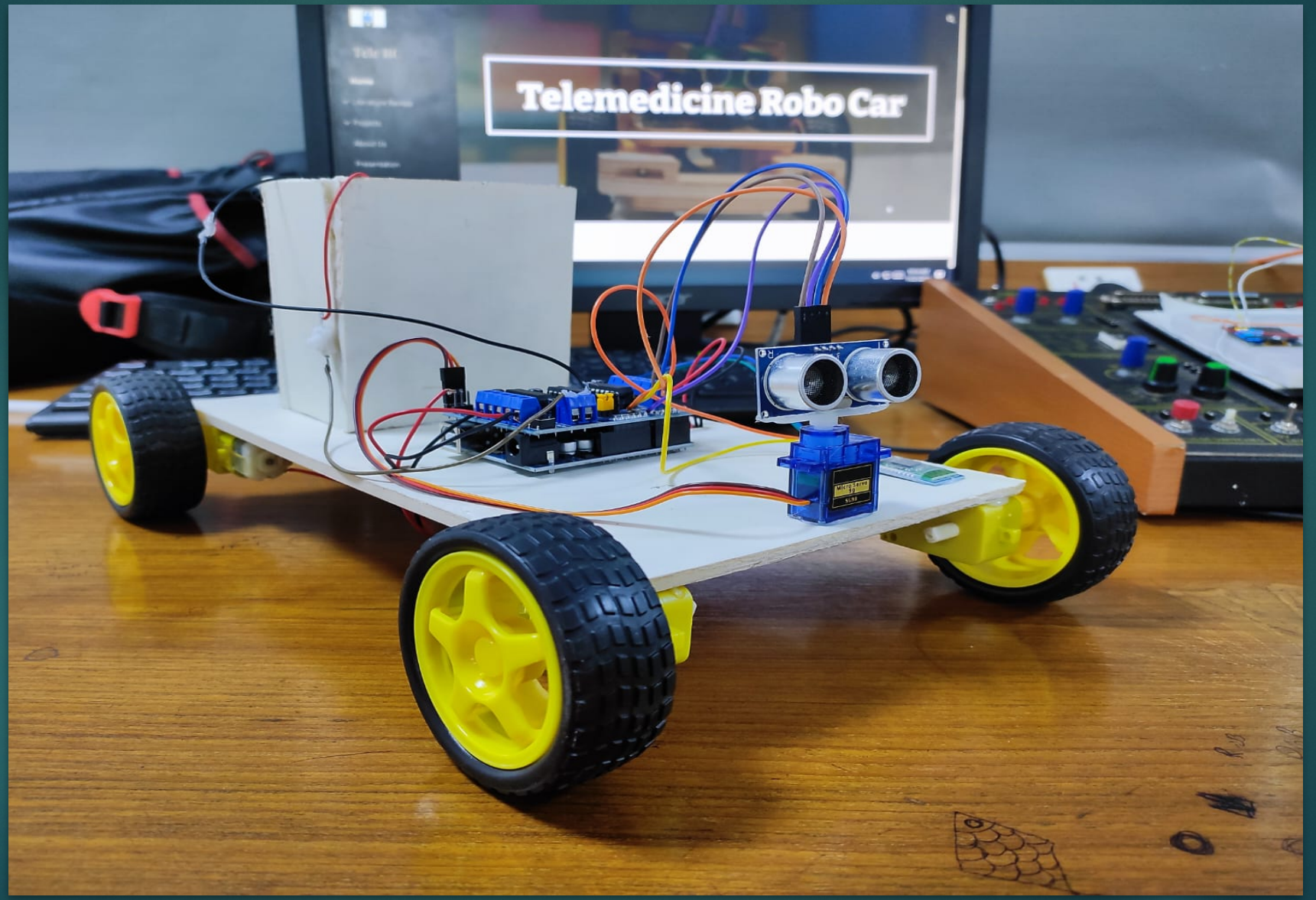


SIDE VIEW



TOP VIEW

FINAL PROTOTYPE:



Discussion:

- Telemedicine Robo Car has the potential to improve access to healthcare by reaching patients in remote or underserved areas.
- By reducing the need for in-person consultations, Telemedicine Robo Car can also help to reduce healthcare costs.
- The personalized care provided by Telemedicine Robo Car can enhance patient outcomes and satisfaction.
- Telemedicine Robo Car has advantages over other telemedicine and telepresence systems, such as its mobility and flexibility.

Discussion:

- However, there are also challenges associated with Telemedicine Robo Car, including technical issues and the need for specialized training.
- Patient acceptance of Telemedicine Robo Car may also be a concern, and ethical and legal considerations need to be considered.
- Future developments in Telemedicine Robo Car, such as incorporating advanced sensors and artificial intelligence, could further enhance its capabilities.
- Further research and development are needed to fully realize the potential of Telemedicine Robo Car in healthcare delivery.

CONCLUSION:

We have presented a low-cost assistive telepresence robot in our project. Many times, patients can not bring the necessary medicines due to terrible situations. For this reason, many patients face various problems and go through hardship. We hope that our telemedicine Robo car will solve this problem. We have also planned for other innovative features to implement which may play a very decent role in the telemedicine field. So, we will try our best to implement all these new innovative features into our telemedicine robo car to provide better and new facilities to the patients and needed persons.

LIMITATIONS AND FUTURE IMPLEMENTATIONS:

REFRENCE:

1. https://cloud.kapostcontent.net/pub/2af3f4ce-83e6-48b3-b80d-150188aa7131/enterprise-collateral-vici-user-guide.pdf?kui=Gnkia42OKUpA3W3W1-nZ9g
2. https://aethon.com/why-mobile-robots-from-aethon/
3. https://www.vantagehealthplan.com/telemedicine
4. Rahangdale, Swapnil, et al. "Meher (Medical Help Robo)." Annals of the Romanian Society for Cell Biology (2020): 298-307.
5. Koceska, Natasa, et al. "A telemedicine robot system for assisted and independent living." Sensors 19.4 (2019): 834.
6. Thinh, Nguyen Truong, and Nguyen Dao Xuan Hai. "Telemedicine Mobile Robot-Robots to Assist in Remote Medical." International Journal of Mechanical Engineering and Robotics Research 10.6 (2021).
7. Jang, S. M., Lee, K., Hong, Y. J., Kim, J., & Kim, S. (2020). Economic evaluation of robot-based telemedicine consultation services.Telemedicine and e-Health,26(9), 1134-1140.

THANK YOU!