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PROJECT: **Remote Controlled Toy car**

**DESCRIPTION:**

This project involves the use of an app created by MIT app inventor to control the movement of the tires and servo motors (acting as arm and claw) to mimic a toy car

**COMPONENTS USED:**

1. Arduino Uno
2. Bluetooth module (BLE)
3. L298 Driver
4. Servo motors
5. Cardboard and plastic pipe for design
6. 4v batteries
7. DC motors

**SOFTWARE USED:**

1. Arduino IDE
2. MIT App Inventor

**CHALLENGES ENCOUNTERED:**

|  |  |  |
| --- | --- | --- |
| S/N | CHALLENGE | SOLUTION |
| 1 | Designing the claw and arm for the car | Plastic pipes were shaped into an arm and a claw. |
| 2 | Conversion of data sent from the app to the Arduino to the right data type | The data was first received as a char and then converted to an int. |
| 3 | The Arduino was unable to power the Bluetooth module and servo motors properly | The Bluetooth module and servo motors were powered using the L298 driver while the driver and Arduino were powered directly from the 8v source. |

**PROCEDURE:**

* First the dc motors with tyres attached to it were fitted onto the chassis board.
* The dc motors were then connected to the L298 driver with the two left tyres connected in the same manner. This was to ensure they both moved in the same direction at all times.
* Step two was repeated for the right side.
* The L298 driver and servo motors were then connected to the Arduino uno according to the code, and then glued onto the board.
* A switch connected between the source and the driver/Arduino for efficient power control

**BLOCK DIAGRAM:**

**2-4v batteries**

**ARDUINO**

**Uno**

**BLE**

**MODULE**

**Servo and Dc Motor**

**DEVICE**

**CODE:**

#include <Servo.h>

Servo Claw;

Servo vSlide;

int MotA;

int MotB;

// Left motors or Motor A

int enbA = 6;

int inp1 = 2;

int inp2 = 3;

// Right motors or Motor B

int enbB = 5;

int inp3 = 4;

int inp4 = 7;

char data;

void setup() {

// put your setup code here, to run once:

Serial.begin(9600);

pinMode(enbA,OUTPUT);

pinMode(enbB, OUTPUT);

pinMode(inp1,OUTPUT);

pinMode(inp2, OUTPUT);

pinMode(inp3, OUTPUT);

pinMode(inp4, OUTPUT);

// Initializing Servo Motor

Claw.attach(9);

vSlide.attach(8);

Claw.write(0);

vSlide.write(70);

}

void loop() {

// put your main code here, to run repeatedly:

if (Serial.available()>0){

data = Serial.read();

int num=int(data);

if (num<10 and num>-1)

{

if(num==0)

{

// Serial.println(data);

analogWrite(enbA, 150);

analogWrite(enbB, 150);

// Making it move in forward direction

digitalWrite(inp1, HIGH);

digitalWrite(inp3 , HIGH);

digitalWrite(inp2, LOW);

digitalWrite(inp4 , LOW);

}

else if(num==1)

{

// move back;

analogWrite(enbA, 150);

analogWrite(enbB, 150);

digitalWrite(inp2, HIGH);

digitalWrite(inp4 , HIGH);

digitalWrite(inp1, LOW);

digitalWrite(inp3 , LOW);

delay(500);

}

else if(num==2)

{

// move left;

analogWrite (enbA,150);

analogWrite( enbB, 150);

digitalWrite(inp1, HIGH);

digitalWrite(inp4, HIGH);

digitalWrite(inp2, LOW);

digitalWrite(inp3 , LOW);

delay(500);

}

else if(num==3)

{

// move right;

analogWrite (enbA,150);

analogWrite( enbB, 150);

digitalWrite(inp3, HIGH);

digitalWrite(inp2, HIGH);

digitalWrite(inp1, LOW);

digitalWrite(inp4 , LOW);

}

else if(num==4)

{

//Stop

digitalWrite(inp1, LOW);

digitalWrite(inp3, LOW);

digitalWrite(inp2, LOW);

digitalWrite(inp4, LOW);

}

}

else if(num<0)

{

vSlide.write(num+180);

}

else

{

Claw.write(num-10);

}

}

}