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\* Project: Control RC Car via Bluetooth with Android Smartphone

\* More information at www.ardumotive.com

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//L293 Connection

const int motorA1 = 5; // Pin 2 of L293

const int motorA2 = 6; // Pin 7 of L293

const int motorB1 = 10; // Pin 10 of L293

const int motorB2 = 9; // Pin 14 of L293

//Leds connected to Arduino UNO Pin 12

const int lights = 12;

//Buzzer / Speaker to Arduino UNO Pin 3

const int buzzer = 3 ;

//Bluetooth (HC-06 JY-MCU) State pin on pin 2 of Arduino

const int BTState = 2;

//Calculate Battery Level

const float maxBattery = 8.0;// Change value to your max battery voltage level!

int perVolt; // Percentage variable

float voltage = 0.0; // Read battery voltage

int level;

// Use it to make a delay... without delay() function!

long previousMillis = -1000\*10;// -1000\*10=-10sec. to read the first value. If you use 0 then you will take the first value after 10sec.

long interval = 1000\*10; // interval at which to read battery voltage, change it if you want! (10\*1000=10sec)

unsigned long currentMillis; //unsigned long currentMillis;

//Useful Variables

int i=0;

int j=0;

int state;

int vSpeed=200; // Default speed, from 0 to 255

void setup() {

// Set pins as outputs:

pinMode(motorA1, OUTPUT);

pinMode(motorA2, OUTPUT);

pinMode(motorB1, OUTPUT);

pinMode(motorB2, OUTPUT);

pinMode(lights, OUTPUT);

pinMode(BTState, INPUT);

// Initialize serial communication at 9600 bits per second:

Serial.begin(9600);

}

void loop() {

//Stop car when connection lost or bluetooth disconnected

// if(digitalRead(BTState)==LOW) { state='S'; }

//Save income data to variable 'state'

if(Serial.available() > 0){

state = Serial.read();

}

//Change speed if state is equal from 0 to 4. Values must be from 0 to 255 (PWM)

if (state == '0'){

vSpeed=0;}

else if (state == '1'){

vSpeed=100;}

else if (state == '2'){

vSpeed=180;}

else if (state == '3'){

vSpeed=200;}

else if (state == '4'){

vSpeed=255;}

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Forward\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

//If state is equal with letter 'F', car will go forward!

if (state == 'F') {

analogWrite(motorA1, vSpeed); analogWrite(motorA2, 0);

analogWrite(motorB1, 0); analogWrite(motorB2, 0);

}

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Forward Left\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

//If state is equal with letter 'G', car will go forward left

else if (state == 'G') {

analogWrite(motorA1, vSpeed); analogWrite(motorA2, 0);

analogWrite(motorB1, 200); analogWrite(motorB2, 0);

}

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Forward Right\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

//If state is equal with letter 'I', car will go forward right

else if (state == 'I') {

analogWrite(motorA1, vSpeed); analogWrite(motorA2, 0);

analogWrite(motorB1, 0); analogWrite(motorB2, 200);

}

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Backward\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

//If state is equal with letter 'B', car will go backward

else if (state == 'B') {

analogWrite(motorA1, 0); analogWrite(motorA2, vSpeed);

analogWrite(motorB1, 0); analogWrite(motorB2, 0);

}

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Backward Left\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

//If state is equal with letter 'H', car will go backward left

else if (state == 'H') {

analogWrite(motorA1, 0); analogWrite(motorA2, vSpeed);

analogWrite(motorB1, 200); analogWrite(motorB2, 0);

}

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Backward Right\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

//If state is equal with letter 'J', car will go backward right

else if (state == 'J') {

analogWrite(motorA1, 0); analogWrite(motorA2, vSpeed);

analogWrite(motorB1, 0); analogWrite(motorB2, 200);

}

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Left\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

//If state is equal with letter 'L', wheels will turn left

else if (state == 'L') {

analogWrite(motorA1, 0); analogWrite(motorA2, 0);

analogWrite(motorB1, 200); analogWrite(motorB2, 0);

}

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Right\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

//If state is equal with letter 'R', wheels will turn right

else if (state == 'R') {

analogWrite(motorA1, 0); analogWrite(motorA2, 0);

analogWrite(motorB1, 0); analogWrite(motorB2, 200);

}

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Lights\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

//If state is equal with letter 'W', turn leds on or of off

else if (state == 'W') {

if (i==0){

digitalWrite(lights, HIGH);

i=1;

}

else if (i==1){

digitalWrite(lights, LOW);

i=0;

}

state='n';

}

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Horn sound\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

//If state is equal with letter 'V', play (or stop) horn sound

else if (state == 'V'){

if (j==0){

tone(buzzer, 1000);//Speaker on

j=1;

}

else if (j==1){

noTone(buzzer); //Speaker off

j=0;

}

state='n';

}

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Stop\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

//If state is equal with letter 'S', stop the car

else if (state == 'S'){

analogWrite(motorA1, 0); analogWrite(motorA2, 0);

analogWrite(motorB1, 0); analogWrite(motorB2, 0);

}

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Battery\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

//Read battery voltage every 10sec.

currentMillis = millis();

if(currentMillis - (previousMillis) > (interval)) {

previousMillis = currentMillis;

//Read voltage from analog pin A0 and make calibration:

voltage = (analogRead(A0)\*5.015 / 1024.0)\*11.132;

//Calculate percentage...

perVolt = (voltage\*100)/ maxBattery;

if (perVolt<=75) { level=0; }

else if (perVolt>75 && perVolt<=80) { level=1; } // Battery level

else if (perVolt>80 && perVolt<=85) { level=2; } //Min ------------------------ Max

else if (perVolt>85 && perVolt<=90) { level=3; } // | 0 | 1 | 2 | 3 | 4 | 5 | >

else if (perVolt>90 && perVolt<=95) { level=4; } // ------------------------

else if (perVolt>95) { level=5; }

Serial.println(level);

}

}