

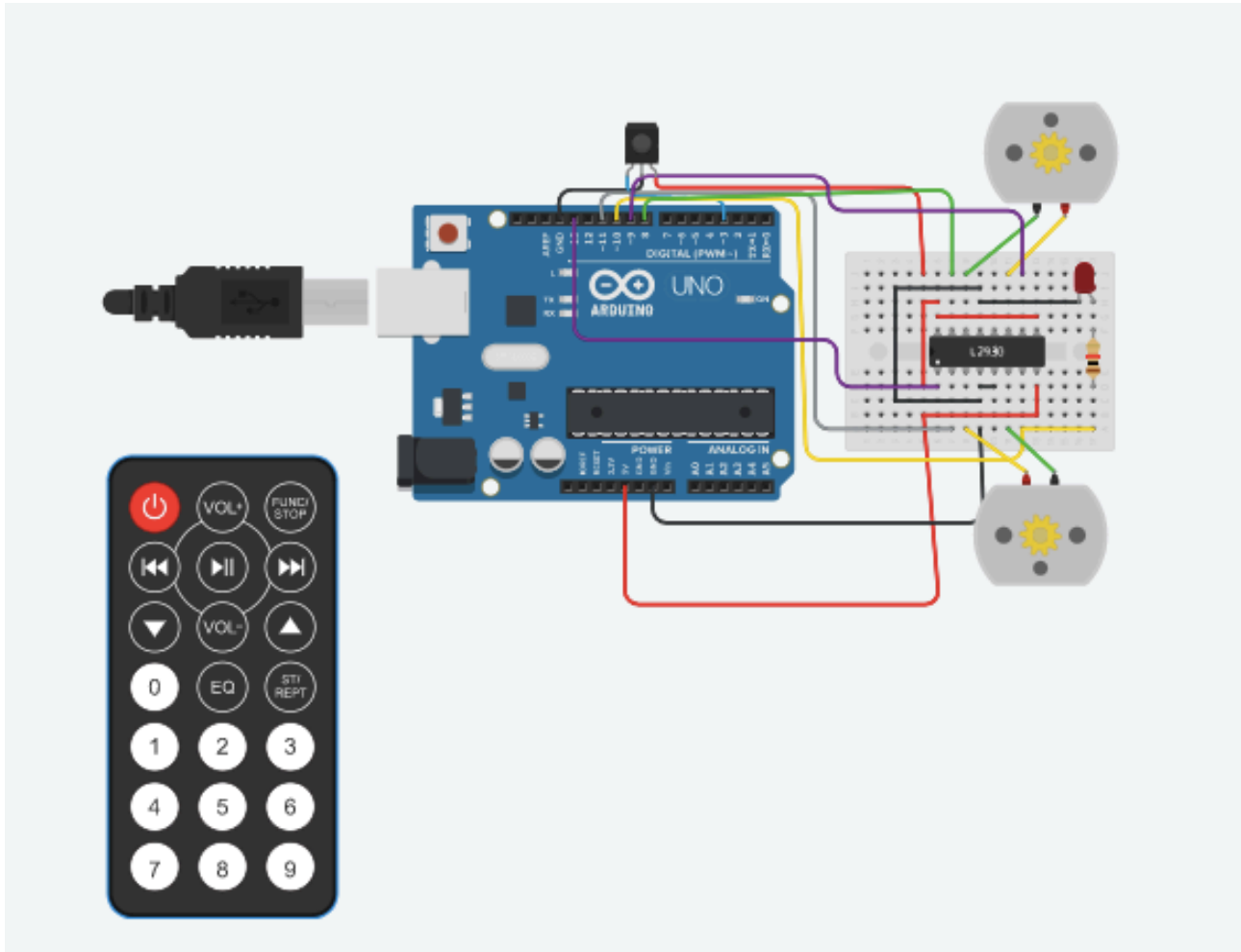
Remote Control Car

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Circuit Diagram



Components Required

- A. LED
- B. Arduino Board
- C. L293D driver
- D. DC Motors x 2
- E. IR Remote
- F. Resistor
- G. IR sensor

Arduino Code

```
#include <IRremote.h>
#include "pins_arduino.h"
int RECV_PIN = 3; // Pin should be PWM

IRrecv irrecv(RECV_PIN);

decode_results results;
int led1 = 1;

void setup()
{
  Serial.begin(9600);
  irrecv.enableIRIn(); // Start the receiver
  pinMode(13, OUTPUT);
  pinMode(8, OUTPUT);
  pinMode(9, OUTPUT);
  pinMode(10, OUTPUT);
  pinMode(11, OUTPUT);

  digitalWrite(13, HIGH);
}

void loop() {
  if (irrecv.decode(&results)) {
    switch(results.value)
    {
      case 16615543: Serial.println("Forward"); // Button 2
                    digitalWrite(8, LOW);
                    digitalWrite(9, HIGH);
                    digitalWrite(10, LOW);
                    digitalWrite(11, HIGH);
                    break;
      case 16591063: Serial.println("Left"); // Button 4
                    digitalWrite(8, HIGH);
                    digitalWrite(9, LOW);
                    digitalWrite(10, LOW);
                    digitalWrite(11, HIGH);
                    break;
      case 16623703: Serial.println("Stop"); // Button 5
                    digitalWrite(8, HIGH);
                    digitalWrite(9, HIGH);
                    digitalWrite(10, HIGH);
                    digitalWrite(11, HIGH);
                    break;
      case 16607383: Serial.println("Right"); // Button 6
                    digitalWrite(8, LOW);
                    digitalWrite(9, HIGH);
                    digitalWrite(10, HIGH);
```

```

        digitalWrite(11,LOW);
        break;
    case 16619623: Serial.println("Back"); // Button 8
        digitalWrite(8,HIGH);
        digitalWrite(9,LOW);
        digitalWrite(10,HIGH);
        digitalWrite(11,LOW);
        break;
    default: Serial.println(results.value);
}
irrcv.resume(); // Receive the next value
}
}

```

Working & Features

A simple remote control car with move forward, backward, left, right and stop control. If the stop is pressed of any change in direction, the LED turns on as an indicator in the car. The car can be controlled using IR remote, with 2 as the forward button, 4 for left turn, 5 for stop, 6 for right turn and 7 for backward motion.

Future Extensions

- A. Add light sensor for automatically switching on lights in the dark
- B. Heat sensor in the motor for turning on fan, if the engine/car heats up
- C. Give control to the user for controlling car lights and fan speed

Conclusion

We learnt about new components while building the remote control car such as the L293D driver, which is used for driving DC motors. Further, we gained deeper insights into how IR sensor and IR remote could be used for wireless communication. And finally, we enjoyed exploring the principle working of a remote control car!