Day 4 - Arduino Workshop

MAE Robotics Club

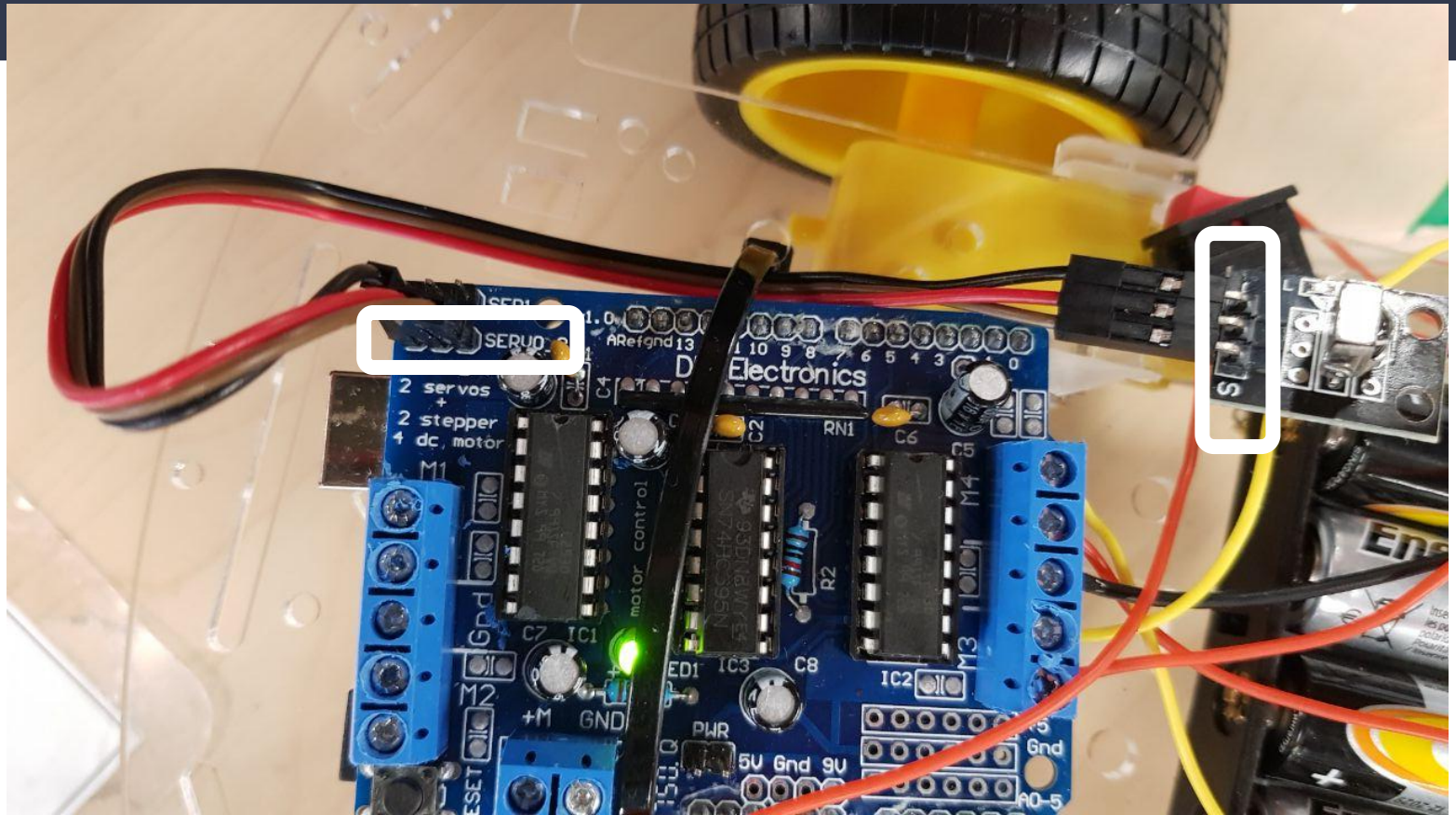
Remote Controlling Robot

This example uses motor driver ports 3 and 4
Make sure this is configured to YOUR robot's motor driver.

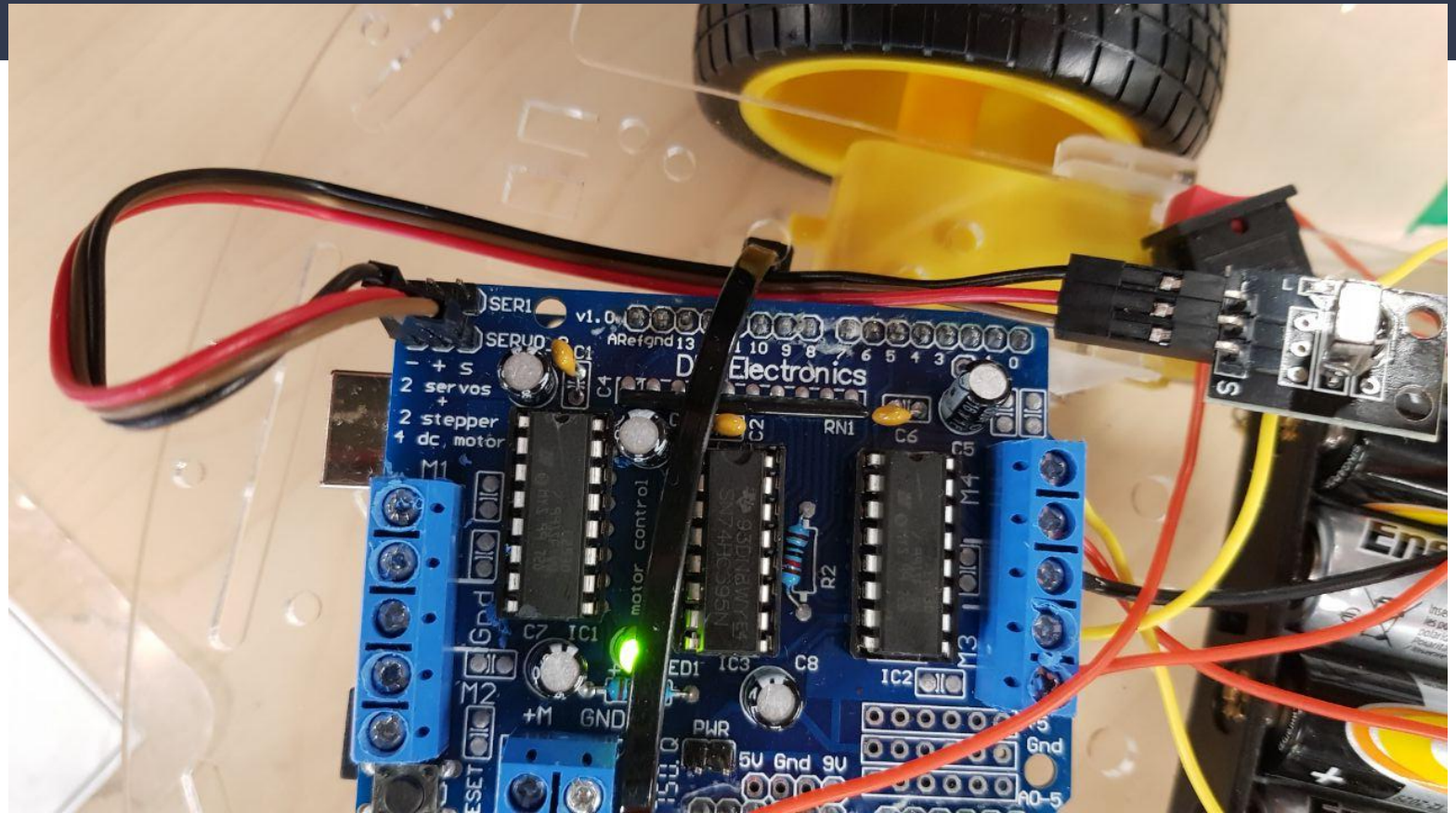
A IR sensor + Remote + Button Battery + Power Bank (+ your existing 4x AA batteries is needed). Make sure those are attached.

Please approach me if you need batteries/help.

Attaching the IR Remote Sensor



Attaching the IR Remote Sensor



Code Part 1/2

```
#include <AFMotor.h>
#include <IRremote.h>

// connect IR receiver to port labelled SERVO_2
#define RECV_PIN 9

// which channel on the motor driver to use
#define MOTOR_CHANNEL_LEFT 3
#define MOTOR_CHANNEL_RIGHT 4

// uncomment the following two lines if necessary
#define INVERT_LEFT_MOTOR
//#define INVERT_RIGHT_MOTOR

#ifdef INVERT_LEFT_MOTOR
  #define MOTOR_LEFT_FW BACKWARD
  #define MOTOR_LEFT_BW FORWARD
#else
  #define MOTOR_LEFT_FW FORWARD
  #define MOTOR_LEFT_BW BACKWARD
#endif
```

```
#ifdef INVERT_RIGHT_MOTOR
  #define MOTOR_RIGHT_FW FORWARD
  #define MOTOR_RIGHT_BW BACKWARD
#else
  #define MOTOR_RIGHT_FW BACKWARD
  #define MOTOR_RIGHT_BW FORWARD
#endif

AF_DCMotor motor_left(MOTOR_CHANNEL_LEFT);
AF_DCMotor motor_right(MOTOR_CHANNEL_RIGHT);

IRrecv irrecv(RECV_PIN);

void setup(){
  Serial.begin(115200);
  Serial.println("Hello");
  irrecv.enableIRIn();
  irrecv.blink13(true);
  motor_left.setSpeed(255);
  motor_right.setSpeed(255);
}
```

Code Part 2/2

```
void loop(){
  static uint32_t last_message = 0;
  static uint32_t last_value = 0xFFFFFFFF;
  decode_results results;

  if (irrecv.decode(&results)){
    last_message = millis();
    Serial.println(results.value, HEX);

    if (results.value == 0xFFFFFFFF) {
      results.value = last_value;
    }

    last_value = results.value;

    if (results.value == 0xFF18E7) {
      // button up
      Serial.println("Up");
      motor_left.run(MOTOR_LEFT_FW);
      motor_right.run(MOTOR_RIGHT_FW);
    } else if (results.value == 0xFF10EF) {
      // button left
      Serial.println("Left");
      motor_left.run(MOTOR_LEFT_BW);
      motor_right.run(MOTOR_RIGHT_FW);
    } else if (results.value == 0xFF5AA5) {
      // button right
      Serial.println("Right");
      motor_left.run(MOTOR_LEFT_FW);
      motor_right.run(MOTOR_RIGHT_BW);
    } else if (results.value == 0xFF4AB5) {
      // button down
      Serial.println("Down");
      motor_left.run(MOTOR_LEFT_BW);
      motor_right.run(MOTOR_RIGHT_BW);
    }

    irrecv.resume();
  } else if ((millis() - last_message) > 100) {
    motor_left.run(RELEASE);
    motor_right.run(RELEASE);
  }
}
```