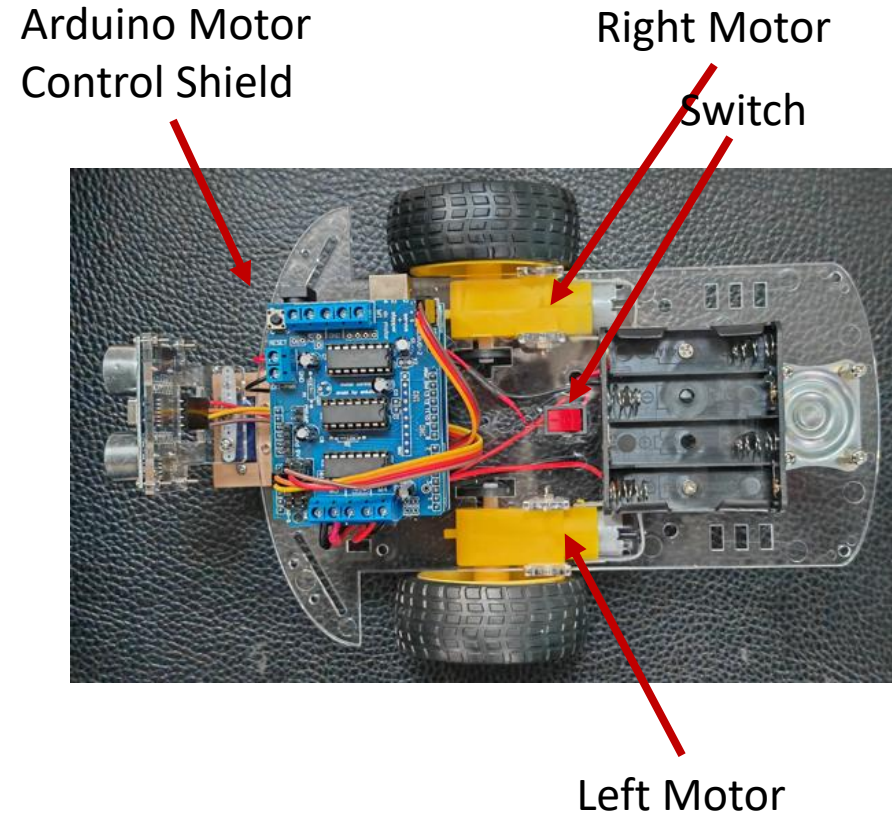
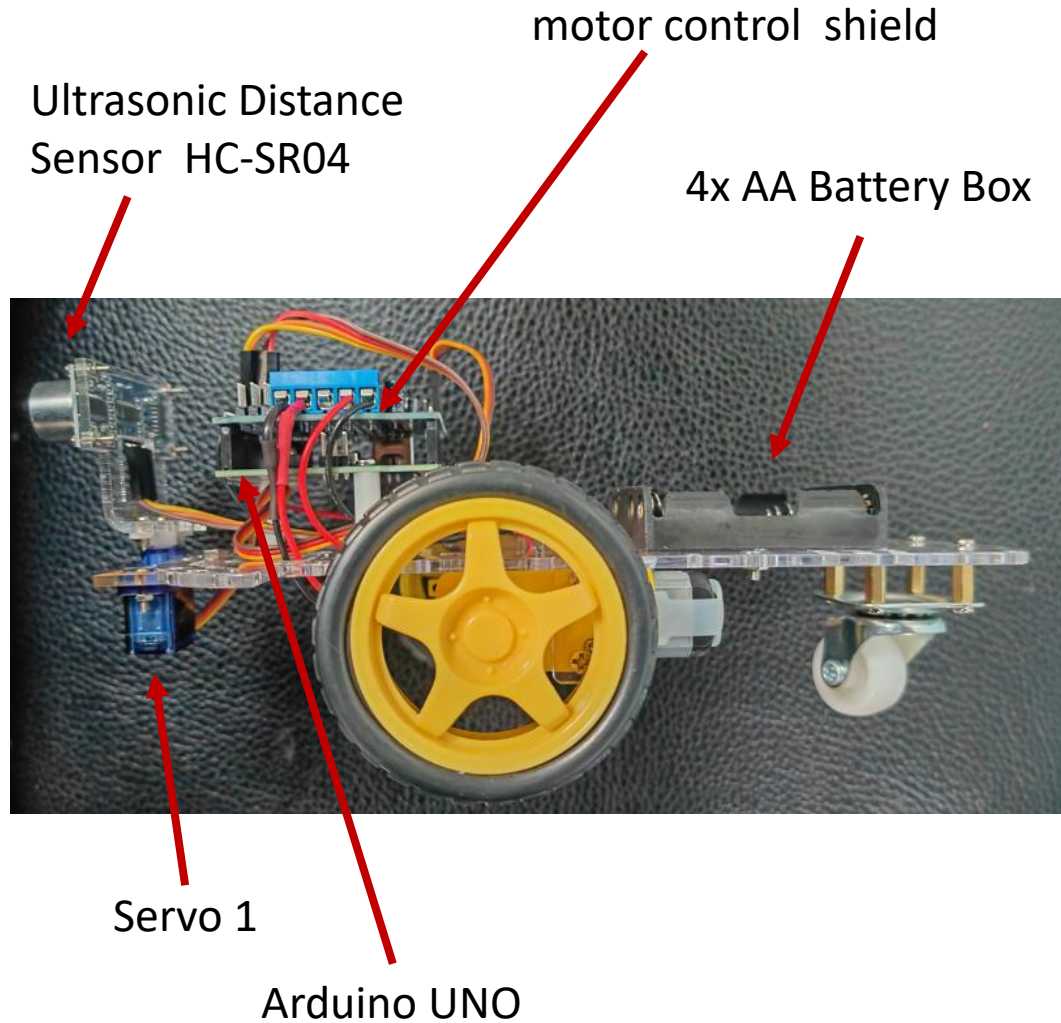
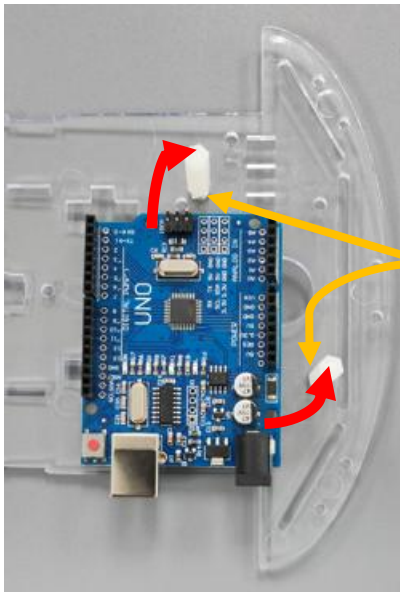


BMT 2WD ARDUINO SMART CHASSIS KIT





20mm
Stand-off
Mounting
holes

Arduino UNO mounting



Servo1

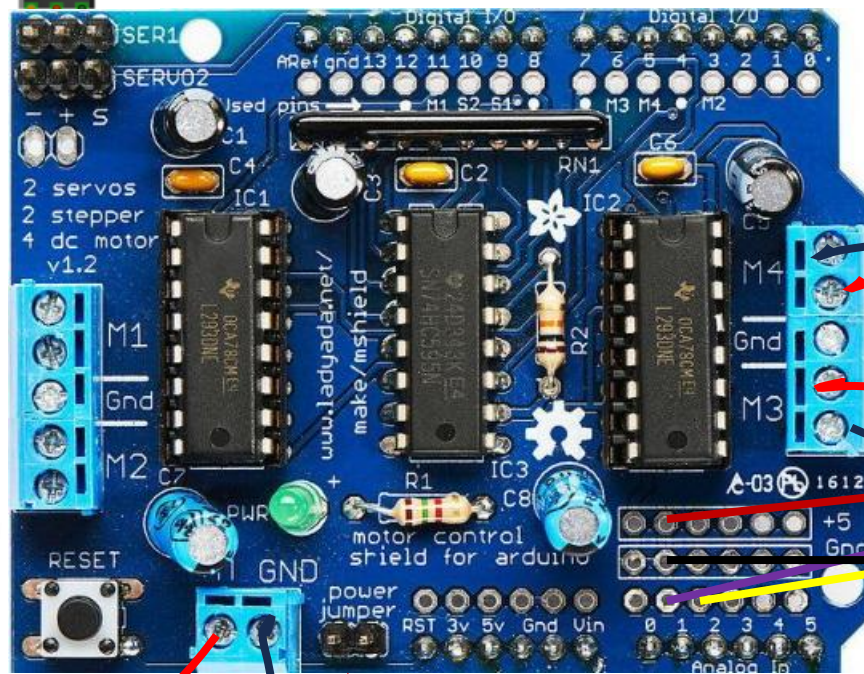
4 x AA Battery Box



Switch



Remove jumper



motor control shield

Left Motor – M4

Right Motor – M3



Ultrasonic distance
Sensor HC-SR04



+5V	Vcc
A1	Trig
A2	Echo
Gnd	Gnd

Arduino Intergraded Development Environment (IDE)

The latest IDE's can be downloaded from:
<https://www.arduino.cc/en/main/software>



 **Arduino IDE 1.8.19** **NB!** →

The open-source Arduino Software (IDE) makes it easy to write code and upload it to the board. This software can be used with any Arduino board.

Refer to the [Getting Started](#) page for Installation instructions.

SOURCE CODE

Active development of the Arduino software is [hosted by GitHub](#). See the instructions for [building the code](#). Latest release source code archives are available [here](#). The archives are PGP-signed so they can be verified using [this](#) gpg key.

DOWNLOAD OPTIONS

- Windows** Win 7 and newer
- Windows** ZIP file
- Windows app** Win 8.1 or 10 [Get](#)
- Linux** 32 bits
- Linux** 64 bits
- Linux** ARM 32 bits
- Linux** ARM 64 bits
- Mac OS X** 10.10 or newer

[Release Notes](#)

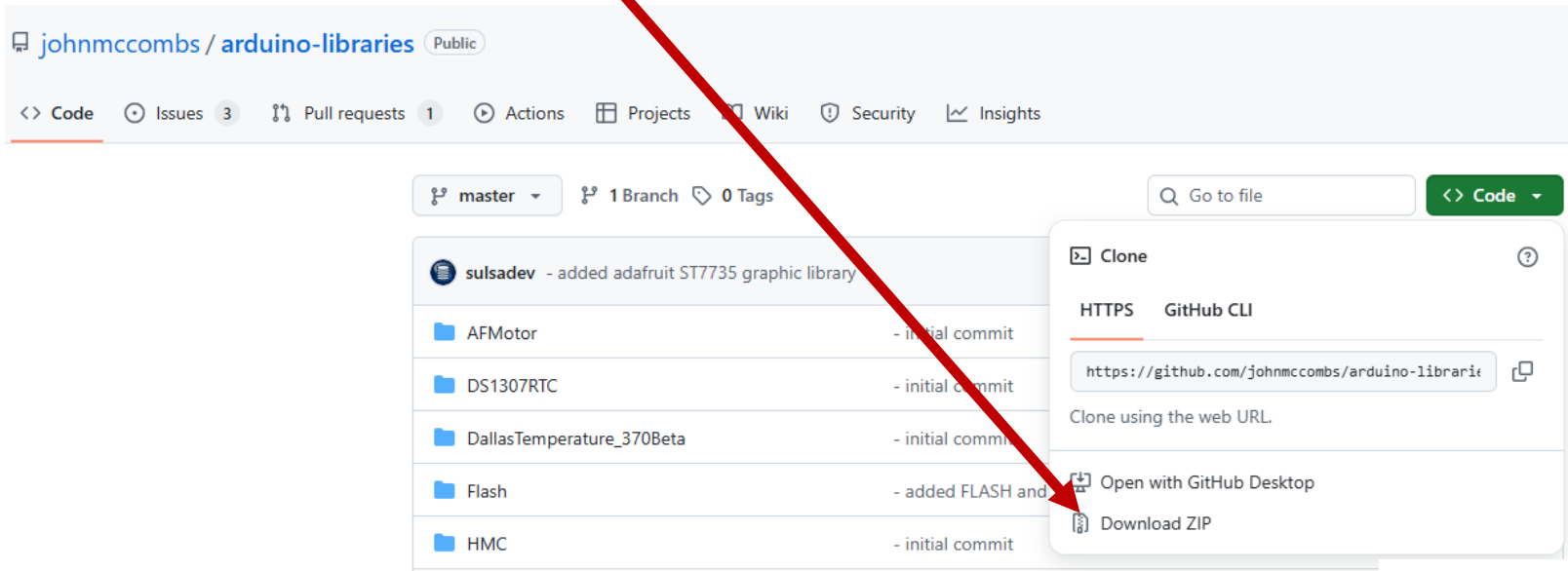
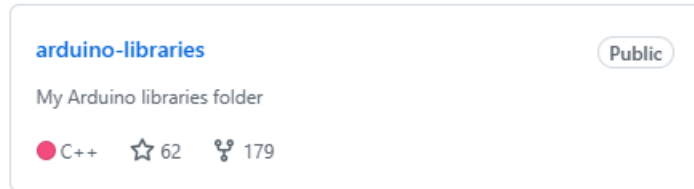
[Checksums \(sha512\)](#)


Libraries

1. The following libraries will be required to make use of all the sensors / motors:
2. To download the AFMotor library.

```
#include <AFMotor.h>
#include <Servo.h>
#include <NewPing.h>
```

- Please refer to the following link: <https://github.com/johnmcombs/arduino-libraries>
- Click on Arduino-libraries
- Click on Download Zip



- The following zip file will be downloaded into the Download folder:  `arduino-libraries-master`

➤ To install Arduino libraries please refer to the following link:

<https://support.arduino.cc/hc/en-us/articles/5145457742236-Add-libraries-to-Arduino-IDE>

- Install the AFMotor library
- Install the Servo library.
- Install the NewPing library

➤ The next pages show sample code to get you started with the kit.

- Please follow the Alphabetical order when typing out the code.

Please note that this code is not the full code for a project.

The kit is a basic training platform for people who are interested in C/C++ coding.

BMT 2WD Basic Code to get started.

A

```
BMT_2WD_BasicCode | Arduino 1.8.19
File Edit Sketch Tools Help
BMT_2WD_BasicCode
#include <AFMotor.h>
#include <Servo.h>
#include <NewPing.h>

/* ----- ULTRASONIC ----- */
#define TRIG_PIN A1
#define ECHO_PIN A2
#define MAX_DISTANCE 200

NewPing sonar(TRIG_PIN, ECHO_PIN, MAX_DISTANCE);

/* ----- MOTORS ----- */
AF_DCMotor motorLeft(4);
AF_DCMotor motorRight(3);

/* ----- SERVO ----- */
Servo scanServo;
```

B

```
/* ----- SETUP ----- */
void setup()
{
  Serial.begin(9600);

  motorLeft.setSpeed(200);
  motorRight.setSpeed(200);

  scanServo.attach(10);
  scanServo.write(90); // Center servo

  Serial.println("2WD Robot Starter Code");
}
```

C

```
/* ----- MAIN LOOP ----- */
void loop()
{
  moveForward();
  delay(2000);

  moveStop();
  delay(500);

  moveBackward();
  delay(2000);

  moveStop();
  delay(500);

  turnLeft();
  delay(1000);

  moveStop();
  delay(500);

  turnRight();
  delay(1000);

  moveStop();
  delay(500);

  servoDemo();

  ultrasonicDemo();
}
```

D

```
/* ----- MOTOR FUNCTIONS ----- */
void moveForward()
{
  motorLeft.run(FORWARD);
  motorRight.run(FORWARD);
}

void moveBackward()
{
  motorLeft.run(BACKWARD);
  motorRight.run(BACKWARD);
}

void turnLeft()
{
  motorLeft.run(BACKWARD);
  motorRight.run(FORWARD);
}

void turnRight()
{
  motorLeft.run(FORWARD);
  motorRight.run(BACKWARD);
}

void moveStop()
{
  motorLeft.run(RELEASE);
  motorRight.run(RELEASE);
}
```

```
E  /* ----- SERVO DEMO ----- */
void servoDemo()
{
  scanServo.write(45);
  delay(500);

  scanServo.write(90);
  delay(500);

  scanServo.write(135);
  delay(500);
}

/* ----- ULTRASONIC DEMO ----- */
void ultrasonicDemo()
{
  int distance = sonar.ping_cm();

  if (distance == 0)
    distance = MAX_DISTANCE;

  Serial.print("Distance: ");
  Serial.print(distance);
  Serial.println(" cm");

  delay(1000);
}
```

Use the Serial monitor under Tools to look at the distance measured by the ultrasonic sensor. You can use this distance in your code to avoid collisions.