

Wesminster Robot Kit

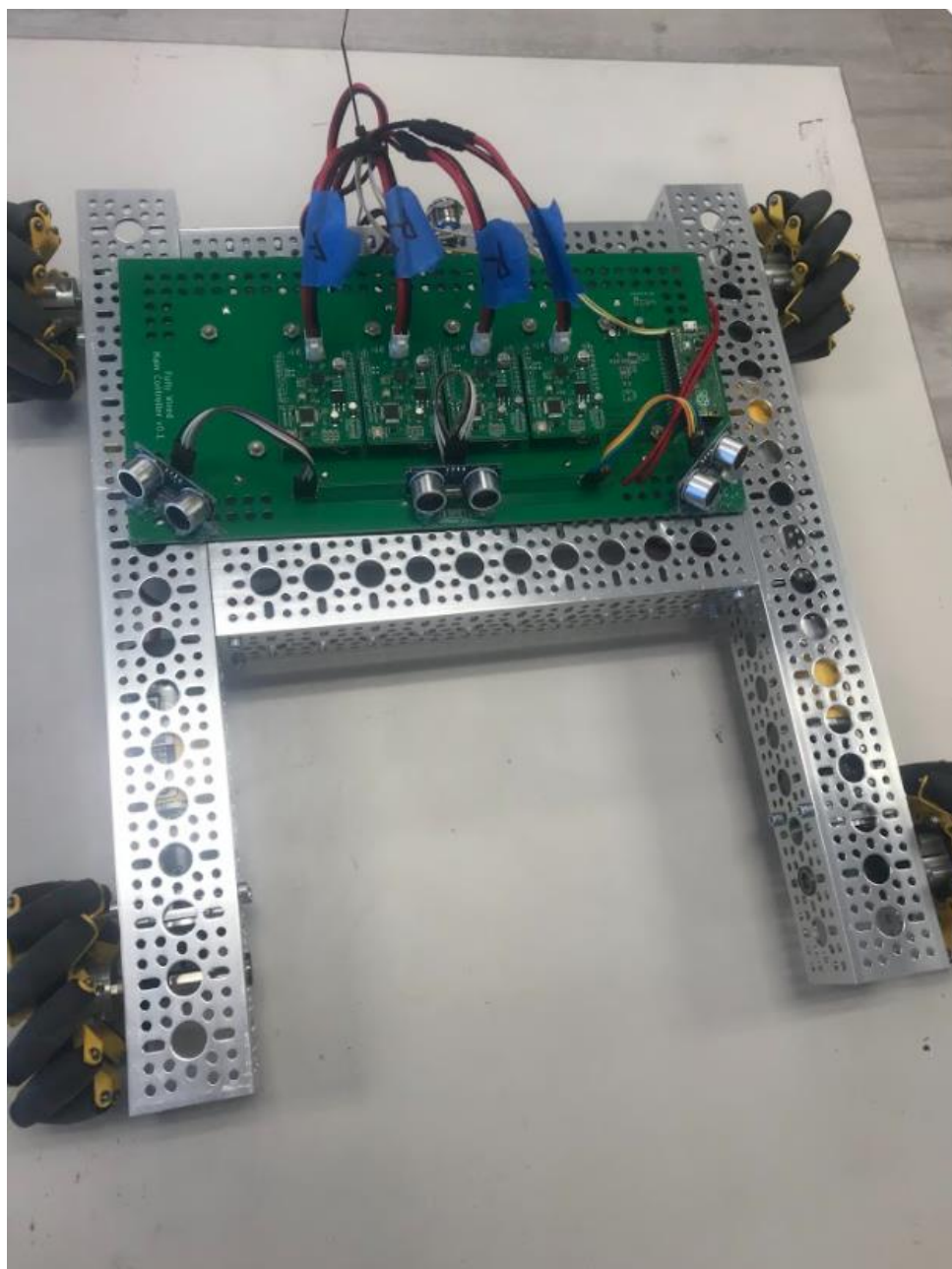



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Installing the Arduino IDE

Head over to <https://www.arduino.cc/en/software> and select your operating system to download the Arduino installer, locate, and install it.



Arduino IDE 1.8.16

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 \(sha512\)](#)

Hourly Builds

Download a **preview of the incoming release** with the most updated features and bugfixes.

DOWNLOAD OPTIONS

Windows
Mac OS X 10.10 or newer
Linux: **32 bits, 64 bits, ARM, ARM64**

LAST UPDATE: 08 Apr 2021, 08:37:23 GMT

Previous Releases

Download the previous version of the current release, the classic 1.0.x, or old beta releases.

DOWNLOAD OPTIONS

Previous Release (1.8.15)

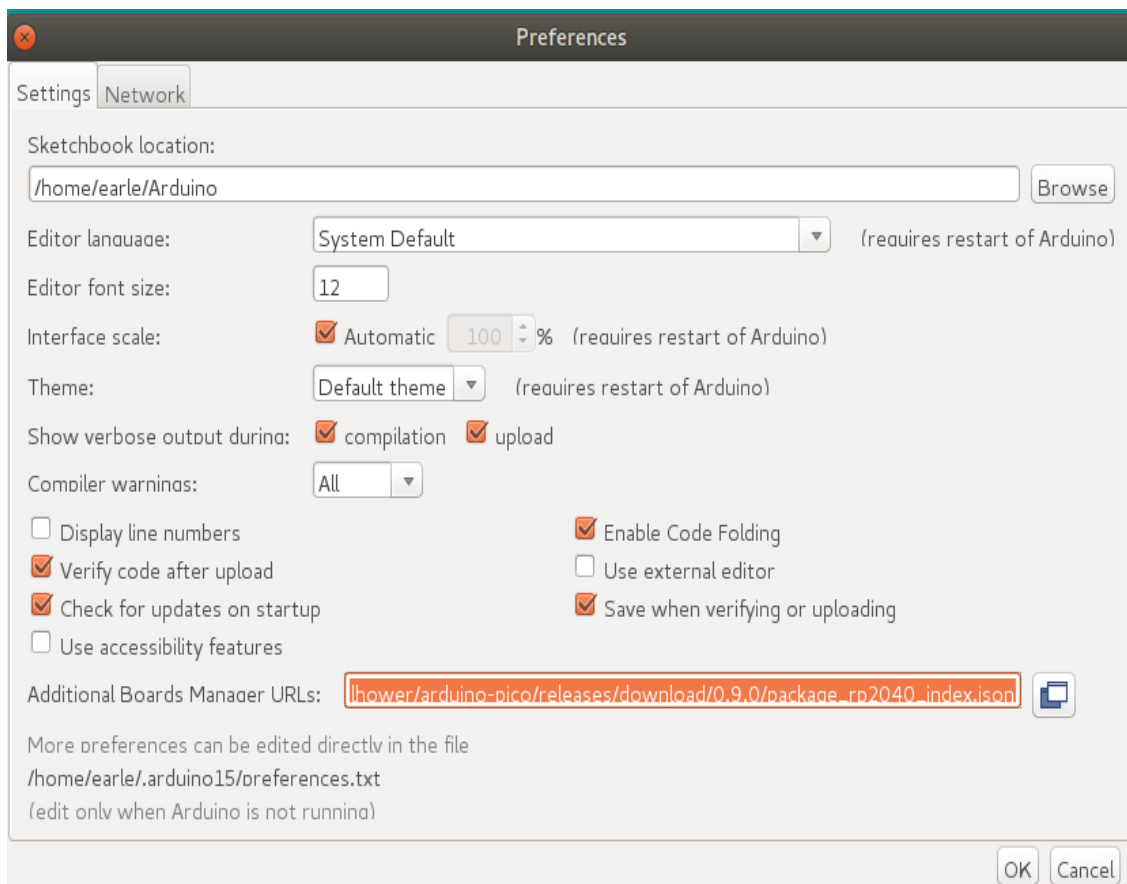
Arduino 1.0.x
Arduino 1.5.x beta
Arduino 1.9.x beta

Installing Required Board Definition Files

Open the Arduino IDE and go to File->Preferences.

In the dialog that pops up, enter the following URL in the "Additional Boards Manager URLs" field:

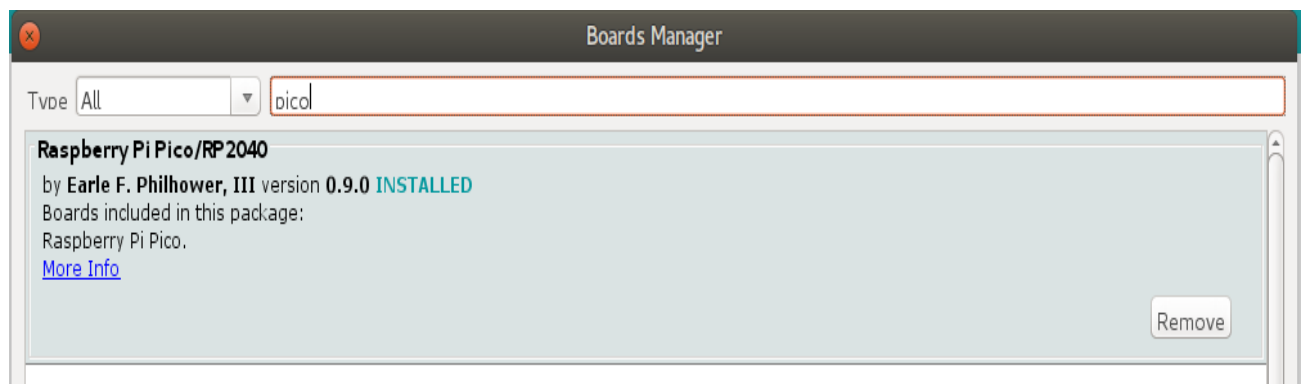
https://github.com/earlephilhower/arduino-pico/releases/download/global/package_rp2040_index.json



Hit OK to close the dialog.

Go to Tools->Boards->Board Manager in the IDE

Type "pico" in the search box and select "Add":

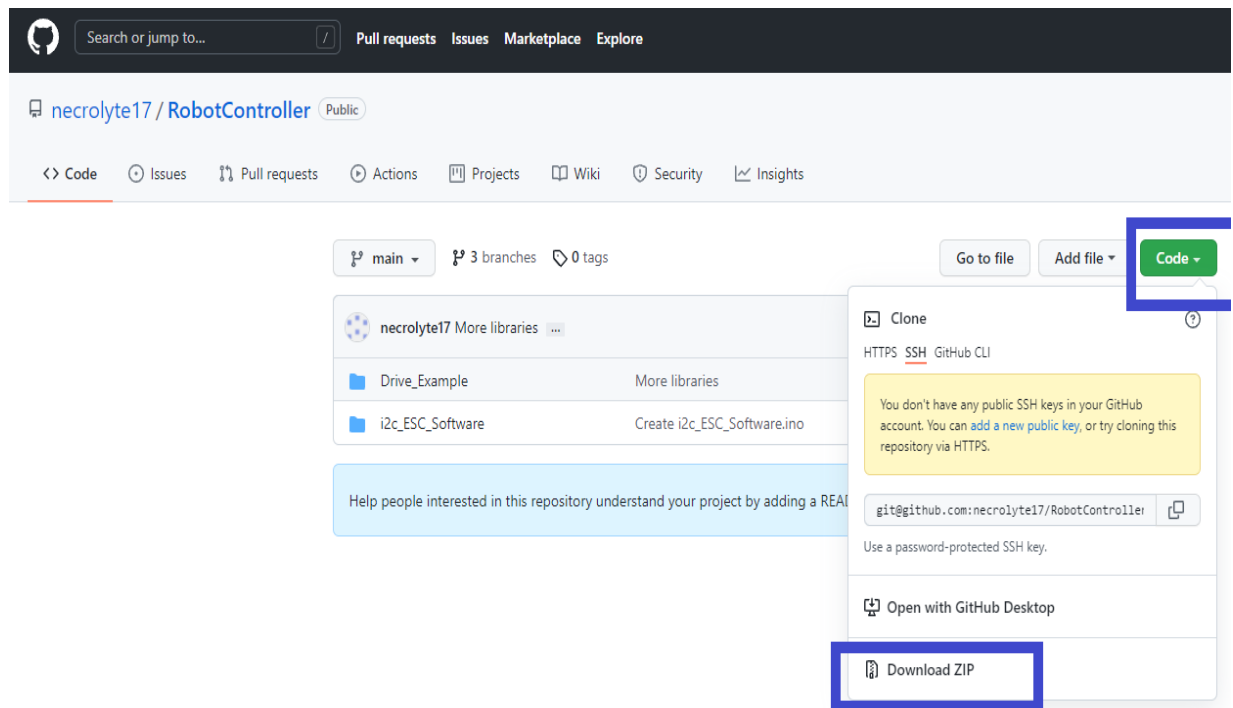


For More information head over to:

<https://github.com/earlephilhower/arduino-pico>

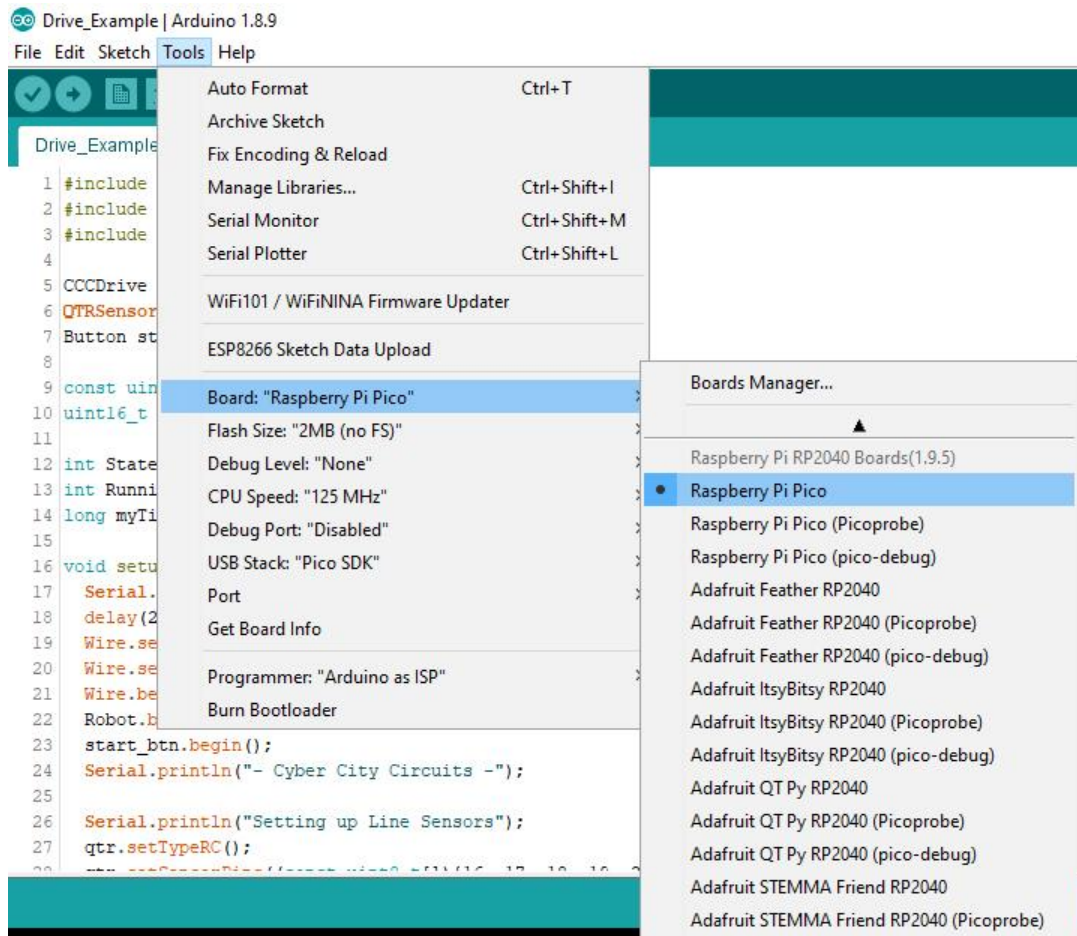
Downloading and Running Sample Code

Head over to <https://github.com/necrolyte17/RobotController> click the green code button and download the zip folder, and unzip it.



Click the example .ino file located in RobotController/Drive_Example to open the example program

Go to Tools->Boards-> Raspberry Pi Pico To select the Pico as your current board



Once you have loaded the Arduino sketch and selected your board click the arrow icon at the top of the Arduino IDE to send the test code to the Pico.

Drive_Example | Arduino 1.8.13

File Edit Sketch Tools Help



Drive_Example

```
#include "src/CCCDrive/CCCDrive.h"
#include "src/Pololu/QTRSensors.h"
#include "src/Button/Button.h"

CCCDrive Robot;
QTRSensors qtr;
Button start_btn(7); //Connect momentary to GPIO 7

const uint8_t SensorCount = 8;
uint16_t sensorValues[SensorCount];

int StateMachine = 0; //Set up variable to hold state machine logic
int Running = 1;      //Set up variable to determine if the robot should be moving
long myTimer = 0;

void setup() {
  Serial.begin(115200);
  delay(2000);
  Wire.setSDA(12);
  Wire.setSCL(13);
  Wire.begin();
  Robot.begin();
  start_btn.begin();
  Serial.println("- Cyber City Circuits -");

  Serial.println("Setting up Line Sensors");
  qtr.setTypeRC();
  qtr.setSensorPins((const uint8_t[]){16, 17, 18, 19, 20, 21, 22, 15}, SensorCount);
  // qtr.setEmitterPin(14);
  /*
  for (uint16_t i = 0; i < 400; i++)
  {
    qtr.calibrate();
  }

  for (uint8_t i = 0; i < SensorCount; i++)
  {
    Serial.print(qtr.calibrationOn.minimum[i]);
    Serial.print(' ');
  }
  Serial.println();

  // print the calibration maximum values measured when emitters were on
  for (uint8_t i = 0; i < SensorCount; i++)
  {
    Serial.print(qtr.calibrationOn.maximum[i]);
  }
}
```

Once the code had uploaded successfully, press the button on the robot to start the movement.

Function examples

You initialize your robot with the CCCDrive Name command before the setup

In our example our robot is initialized with.

CCCDrive Robot;

Our functions tell the Robot what to do. We will use Robot as our object name in our examples.

If you head down to the void loop() function you can call the following functions.

Command	Values Accepted	Function
Robot.begin();		Called in the setup to initialize the robot
Robot.stop();	int MotorAddress	Stops the specified motor
Robot.allstop();		Stops all of the motors
Robot.driveforward();	int speed	Moves the robot forward at the specified speed
Robot.drivereverse();	int speed	Moves the robot backward at the specified speed
Robot.rightturn();	int speed	Turns the robot to the right at the specified speed
Robot.leftturn();	int speed	Turns the robot to the left at the specified speed
Robot.strafe();	int dir, int speed	Commands the robot to strafe in the desired direction at a specified speed (Direction Values 1 = strafes right 2= strafes left)
Robot.diagonal();	int dir, int speed	Commands the robot to move diagonally in the desired direction at the specified speed (Direction Values 1 = forward left 2= forward right 3= reverse left 4= reverse right)

Example Function Usage

Head over to the Basic_Movement folder located in the CCCmotor Folder, and open the Basic_Movement.ino. Feel free to edit the commands to make the robot move as youd like

In this example we will be controlling the robot by adding movement functions inside of the if(Runing == 1){ } loop.

```
void loop() {  
    CheckforButton(); //Main command, do not remove! This monitors button press for robot  
    state  
  
    if(Running == 1) { //If the robot should be moving, do things here  
  
        Robot.driveforward(50);  
        delay(5000);  
        Robot.allstop();  
        delay(5000);  
        Robot.rightturn(50);  
        delay(1000);  
        Robot.drivereverse(50);  
        delay(5000);  
        Robot.diagonal(2,50);  
        delay(1000);  
        Robot.strafe(1, 60);  
        delay(5000);  
        Robot.allstop();  
    }  
}
```

}