

Self Driving Robot

Programming a robot car to drive autonomously



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```
void robotReverse() {  
    //add code here  
}
```

```
void robotLeft() {  
    //add code here  
}
```

```
void robotRight() {  
    //add code here  
}
```

```
void robotStop() {  
    //add code here  
}
```

Connecting and Downloading to Arduino:

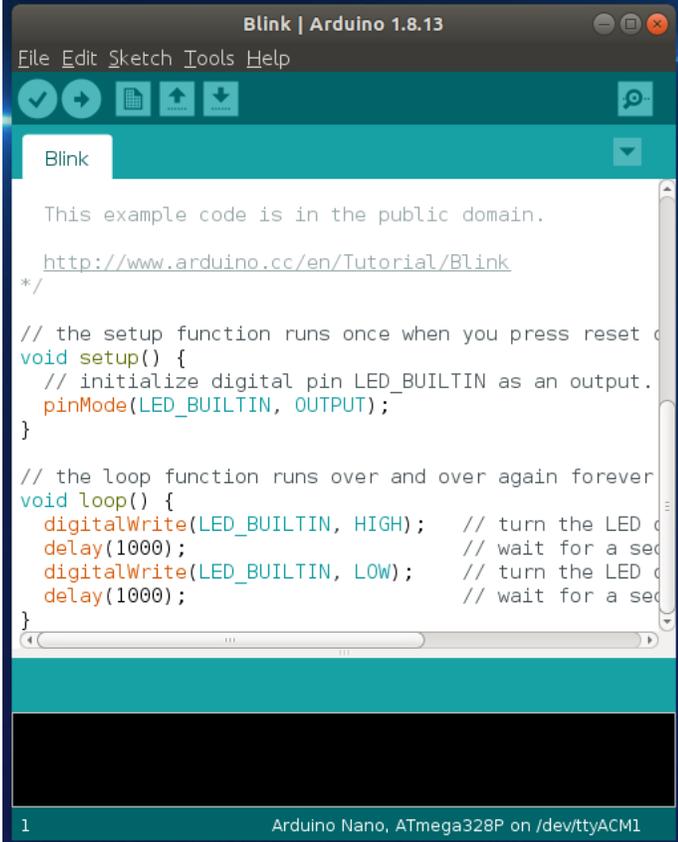
Step 1: Copy and paste your text code into Arduino IDE.

Step 2: Click on the tick in the top left to 'compile' code.

Step 3: Plug your Elegoo into the computer.

Step 4: Click on the circle with a → arrow to transfer.

***Note:** You can also use the magnifying glass icon (top right) to see the serial-monitor for your connected Arduino.*



```
Blink | Arduino 1.8.13
File Edit Sketch Tools Help
Blink
This example code is in the public domain.
http://www.arduino.cc/en/Tutorial/Blink
*/
// the setup function runs once when you press reset or power the board on
void setup() {
  // initialize digital pin LED_BUILTIN as an output.
  pinMode(LED_BUILTIN, OUTPUT);
}
// the loop function runs over and over again forever
void loop() {
  digitalWrite(LED_BUILTIN, HIGH); // turn the LED on (HIGH is the positive voltage)
  delay(1000); // wait for a second
  digitalWrite(LED_BUILTIN, LOW); // turn the LED off by making the pin LOW (no voltage)
  delay(1000); // wait for a second
}
1 Arduino Nano, ATmega328P on /dev/ttyACM1
```



IMPORTANT: Disconnect your robot and put it on the floor before turning it on

BRONZE Challenge:

Autonomous following a line:

- Using the line following sensors get your robot to follow line 1
- What adjustments might need to be made for lines 2 and 3?
- What happens if you speed up the robot?

How far can you get along each of the lines?

SILVER Challenge:

Obstacle avoidance:

- Using the ultrasonic sensor and servo have the robot driving around avoiding obstacles
- Drive forward until an obstacle is detected
- When an obstacle is detected the robot should stop, then decide which direction to turn
- Turn 90 degrees and continue

GOLD Challenge:

Maze Navigation

- Using the ultrasonic sensor and servo, can you get your robot to Safely navigate around the maze without hitting any of the walls?