Self Driving Robot

Programming a robot car to drive autonomously

Joining the Classroom

Go to www.tinkercad.com/joinclass

Enter class code: H5JTYVF9RZ9U

Enter your nickname as provided by us

```
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:

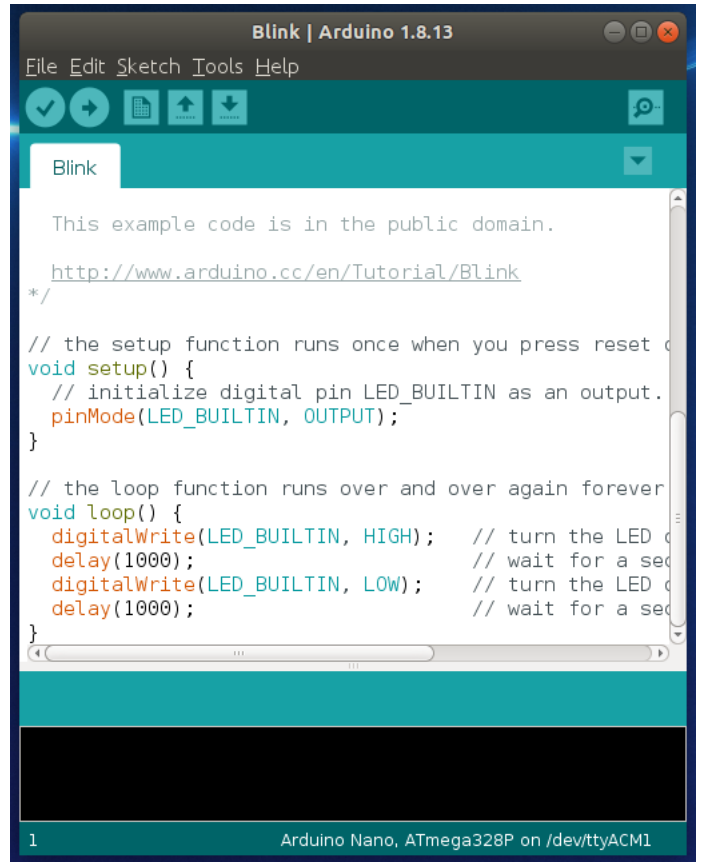
Step 1: Copy and paste your text code into Arduino IDE.

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.*



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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?