

NRG Fall 2019

Notes for Returning Students

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Resources

Arduino Programming App:

<https://www.arduino.cc/en/Main/Software>

If you would like to program your Arduino on your own PC or Mac at home, you can download the software (called the IDE or Integrated Development Environment) from the link above.

Code Red NRG Resources:

<https://coderedrobotics.com/nrg/nrg-resources/>

This page contains links to Code Red's NRG Game Manual and Arduino programs used to drive the robots in competition. Check back for recent updates!

Getting Started Guide for Arduino UNO:

<https://www.arduino.cc/en/Guide/ArduinoUno>

Your robot uses an Arduino single-board computer as its "brain." This link explains how you can explore using the Arduino for other projects besides using it for a robot.

Week 1 - Intro

- Arduino Programming Intro
 - Arduino Programming App: The **Integrated Development Environment (IDE)**
 - Arduino Programs: **Sketches**
 - **Sketch** structure.
 - **Verify** sketch.
 - Connect USB and **Upload** to robot (be sure to remove bluetooth module!).
 - Monitor robot with the Serial Interface
 - Program structure
 - Libraries to connect to robot.
 - Variables, Loops, and Functions

- Blink Demo
- Make it move
 - Example program: Make the robot move a short distance.
 - How fast can you go?
 - How slow can you go?

Week 2

- Ultrasonic Sensors and Line Following
- Demo: Distance Readout
- Bollard Bowling Review
- Reload competition program
 - Tournament practice.

Week 3 - 5

- Bollard Bowling Programming
- Reload competition program
 - Tournament practice.

Week 6

- Bollard Bowling Mini Tournament
- Reload competition program
 - Tournament practice.

