Introduction to Arduino Programming

references
these notes borrow from . . .
– Arduino web site
  • http://arduino.cc/en/Tutorial/HomePage
– Adafruit tutorial #1 and 2
  • http://www.adafruit.net/learn/arduino/lesson1.html
– Leah Buechley’s Introduction to Arduino
  • http://web.media.mit.edu/~leah/CS2/03_arduino_intro.html

writing and downloading code
Write sketch on PC

Download sketch to Arduino
running Code while tethered

- Run sketch on Arduino and send data back to PC

Arduino interacts with its environment

Serial communication back to host

running code stand-alone

- Run Arduino in stand-alone mode

Arduino interacts with its environment and runs on battery power

Arduino IDE

IDE = Integrated Development Environment

code structure: header

- Header provides information and can also contain code.

code structure: setup function

- Setup function is executed only once at the start.

code structure: loop function

- Loop function is repeated indefinitely.
pinMode(13, Output) prepares pin 13 for outputs of voltage

digital I/O functions: pinMode, digitalWrite, digitalRead

digitalWrite(13, HIGH) sets pin 13 to a voltage that means “on” (five volts in this case)

digital I/O functions: pinMode, digitalWrite, digitalRead

delay(1000); tells microcontroller to do nothing for 1000 ms = 1 s

digital I/O functions: pinMode, digitalWrite, digitalRead
digitalWrite(13, LOW) sets pin 13 to voltage that means "off" or zero volts

digital I/O functions:
  - pinMode
  - digitalWrite
  - digitalRead