Introduction to Arduino at the Rochester Makerspace
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Agenda:

A. Why the Arduino?
   Single board computers vs. microcontrollers
   Example Arduino projects
   Capabilities and limitations of the basic Arduino

B. Using the Arduino Ecosystem
   The Arduino hardware + breadboarding
   Arduino programing and libraries
   The Arduino IDE
   The write/compile/execute loop

C. Working with Example Sketches and Circuits
   1. Blink (File|Examples|01.Basics|Blink)
      focus: basic code of a sketch
      experiment: change the rate of blinking

   2. Button (File|Examples|02.Digital|Button)
      focus: breadboarding, variables
      experiment: reverse the effect of a button press

   3. ReadAnalogVoltage (File|Examples|01.Basics|ReadAnalogVoltage)
      focus: analog input, monitor/plotter
      experiment: convert to use the 3.3v pin

   4. Fade (File|Examples|01.Basics|Fade)
      focus: PWM
      experiment: change the variables

   5. Knob (File|Examples|Servo|Knob)
      focus: #includes, motor control
      experiment: restrict the servo range of motion

   6. BlinkWithoutDelay (File|Examples|02.Digital|BlinkWithoutDelay)
      focus: code execution timing
      experiment: print to the serial monitor at the same time

   7. Debounce (File|Examples|02.Digital|Debounce)
      focus: the mechanical world
      experiment: how short can your delay be without flickering the led?

D. The Next Level

Power issues

Communications protocols

Speed and memory limits

Shields and other microprocessor development ecosystems

E. Resources

At the makerspace: electronics area, other classes, meetup, one-on-one

Arduino documentation: https://www.arduino.cc/

Boards, components, tutorials:

Adafruit: https://www.adafruit.com/

Sparkfun: https://www.sparkfun.com/

Seeed Studio: https://www.seeedstudio.com/

Amazon, Digikey, Microcenter, Tinkersphere, Aliexpress

F. Arduino Uno (clone) pinout