field of study Specific Guidelines

Microprocessors

Project guidelines

* Must be above “hobbyist level” in code and hardware.
* No “Instructables” (although combining multiple Instructables in a unique way will be considered)
* Must combine knowledge from multiple labs, classes etc.
* Must have multiple IO devices and multiple connection/interface types – integration of multiple devices is required.

Current Field of Study

* MUST be a standalone device
* Requires user interface
  + Push Buttons, Keypad, dials, etc for user input
  + LED indicators, LCD display etc for user output

New IoT Field of Study (Kick-off TBD)

* Must include network communications (Blue Tooth, ZigBee, WiFi, Ethernet, Cellular etc) in a meaningful way (either in data collection/distribution, user interface, etc)

final Report guidelines

* Document reason/justification for processor/board used (e.g. why did you pick a Raspberry Pi for the project over an Arduino)
  + Should include I/O list vs capabilities of board
  + Should include reasoning behind using microcontroller or a microprocessor capable of running an OS.
* Diagrams
  + Block Diagram showing all interfaces (IO, A/D, I2C, SPI, BUS, Can, etc). Must be properly drawn as per industry standards
  + Wiring diagram for IO and hardware schematics for custom build circuits.
* A/D Calibration calculations (A/D to Real world measurement) REQUIRED
* Code
  + All code properly commented
  + For projects using Operating Systems (PI, Beagleboard, etc.)
    - All scripts properly commented
    - All modified setup files
    - List of installed software over and above initial OS install
  + List of all libraries used, including source link