# Makerspace Raspberry Pi Workshops / Projects

## Workshops

1. Intro to Python for RPi
   1. Python basics (assignment, conditionals, loops, modules)
   2. Basic GPIO Control (learning to use a module)
   3. UART messaging
      1. Participants send and receive messages over UART with python
2. Computer Vision Basics with RPi
   1. Intro to OpenCV
   2. Motion Detection
   3. Dealing with Regions
3. Pi Communications
   1. Network Communication (Alert Messages / Remote Control)
   2. Arduino UART Communication
      1. Command / Response Message Formats

## Potential Projects

1. Capture the Hole + RPi
   1. Detect ball using motion detection
   2. Send color of the ball (and maybe other things) to the Arduino
2. Security Camera
   1. Motion Detection
   2. Remote viewing using the network
   3. Email Alerts using a rule system