

Session Three

Getting Started

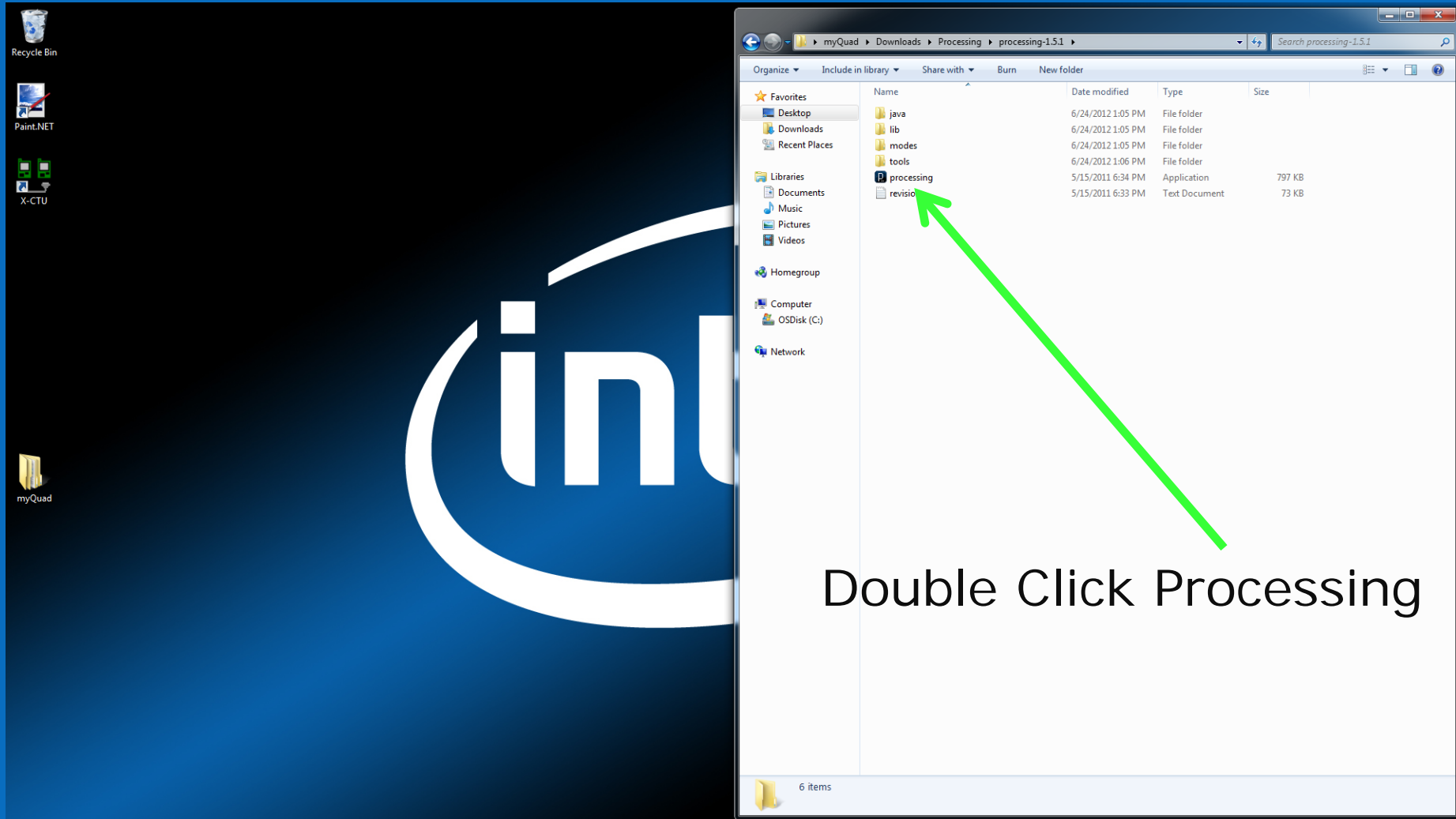
With

Processing

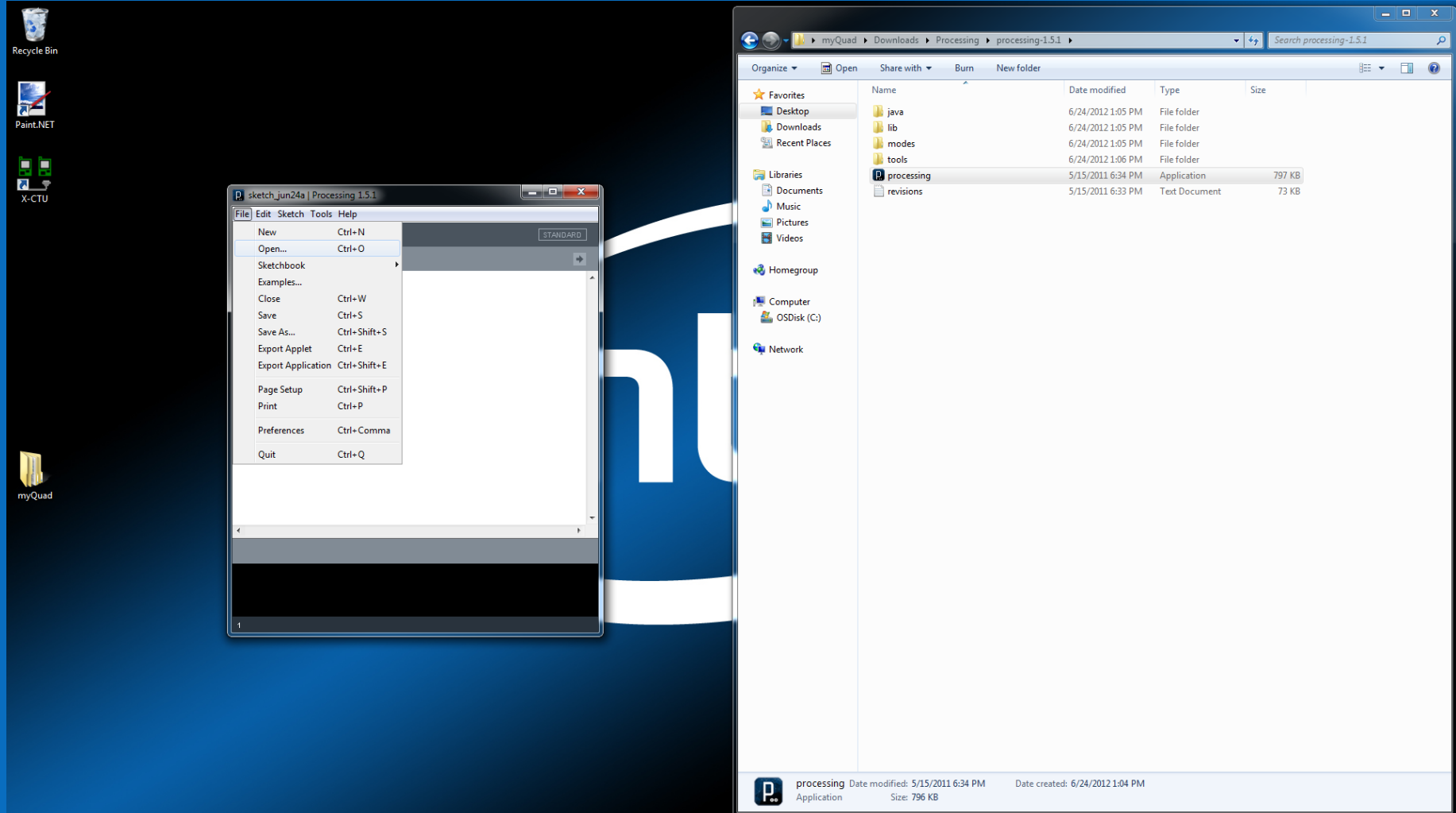
Robotics Week Instructor
Joy Shetler, PhD

Intel Ultimate Engineering Experience (IUEE)

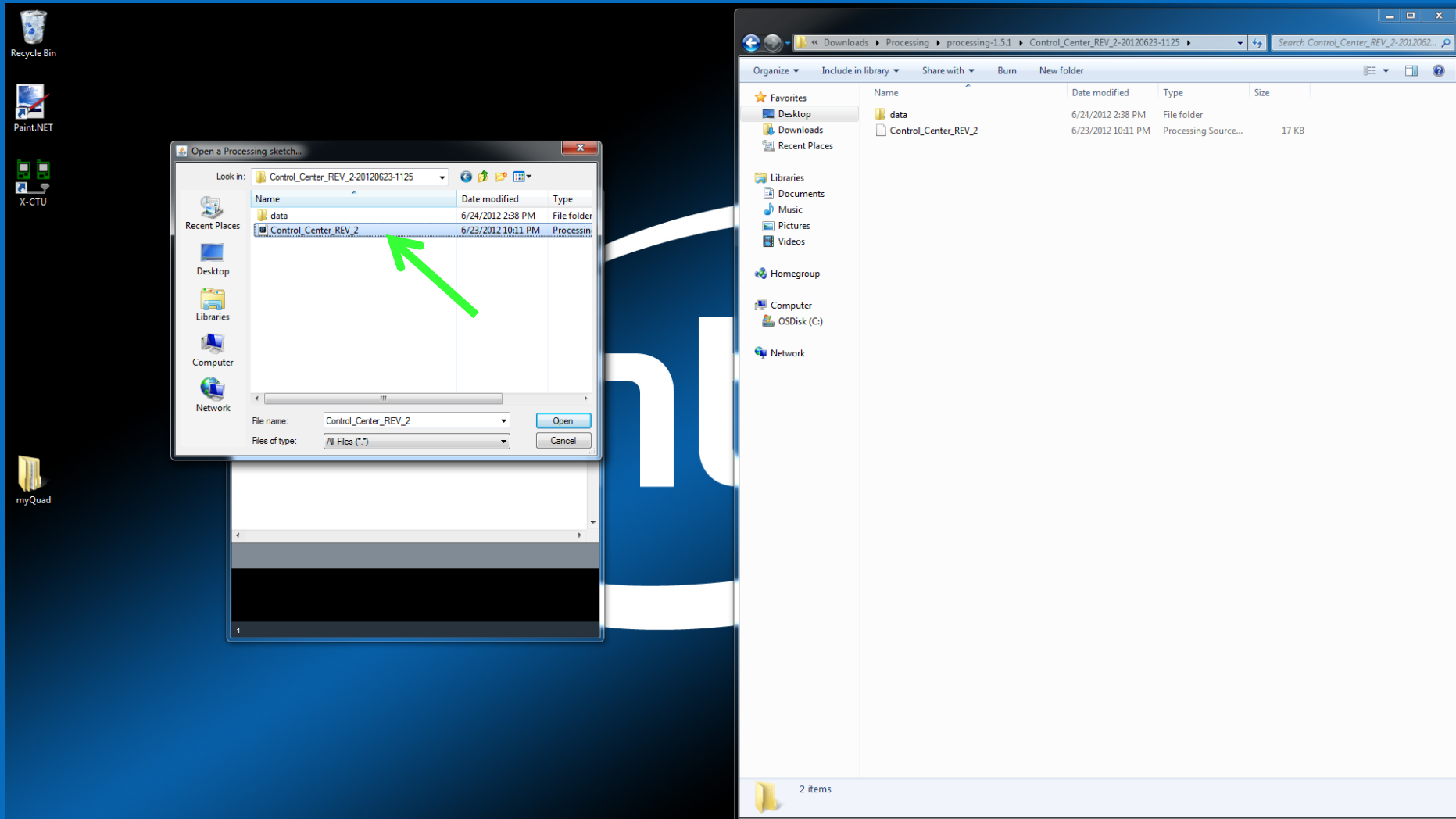
Navigate to: C:\Users\Intel\Desktop\myQuad\Downloads\Processing\processing-1.5.1



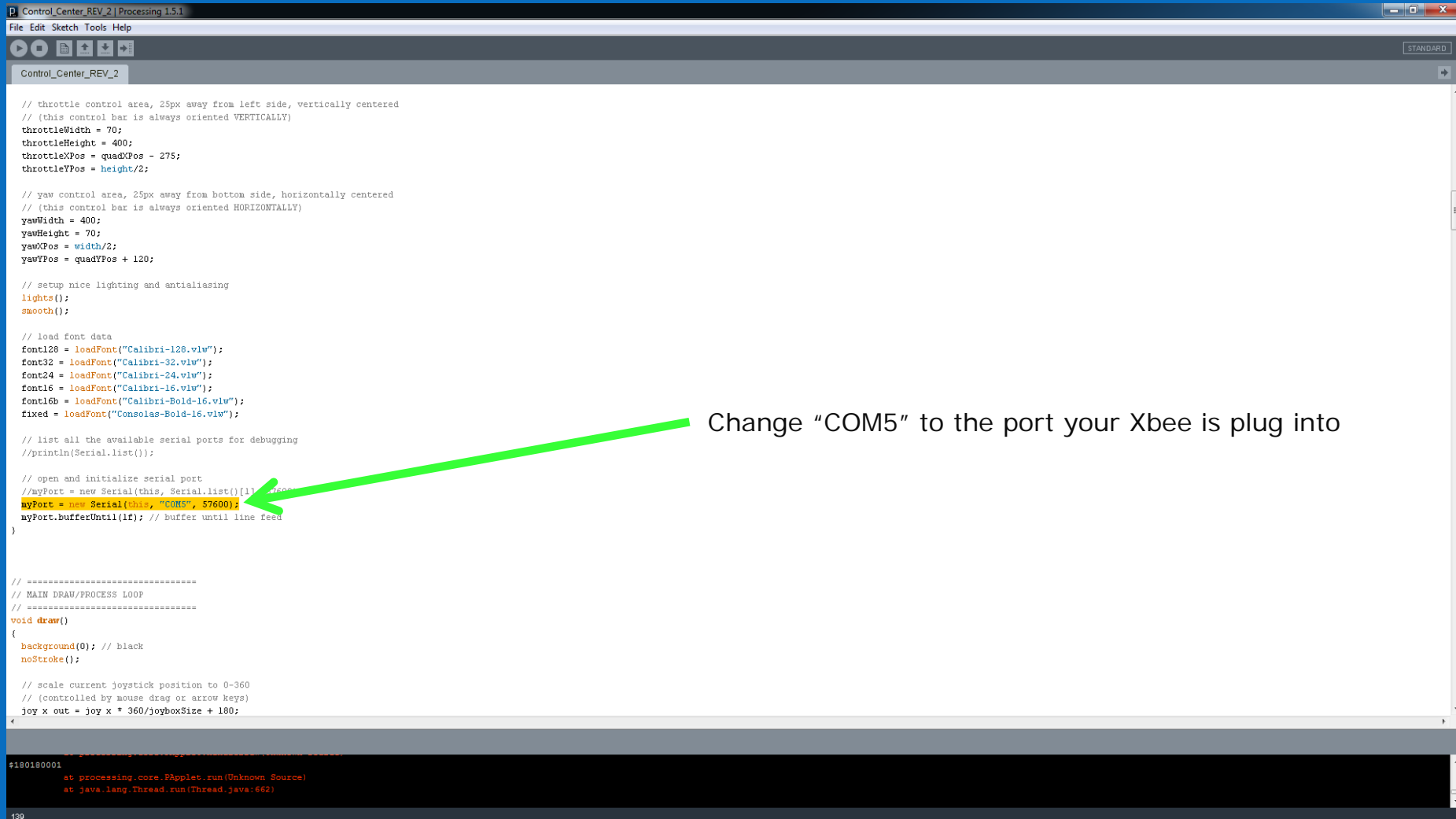
Click File – Open



Open: C:\Users\Intel\Desktop\myQuad\Downloads\Processing\processing-1.5.1\Control_Center_REV_2-20120623-1125\Control_Center



Change to Proper Port



```
Control_Center_REV_2 | Processing 1.5.1
File Edit Sketch Tools Help

Control_Center_REV_2

// throttle control area, 25px away from left side, vertically centered
// (this control bar is always oriented VERTICALLY)
throttleWidth = 70;
throttleHeight = 400;
throttleXPos = quadXPos - 275;
throttleYPos = height/2;

// yaw control area, 25px away from bottom side, horizontally centered
// (this control bar is always oriented HORIZONTALLY)
yawWidth = 400;
yawHeight = 70;
yawXPos = width/2;
yawYPos = quadYPos + 120;

// setup nice lighting and antialiasing
lights();
smooth();

// load font data
font128 = loadFont("Calibri-128.vlw");
font32 = loadFont("Calibri-32.vlw");
font24 = loadFont("Calibri-24.vlw");
font16 = loadFont("Calibri-16.vlw");
font16b = loadFont("Calibri-Bold-16.vlw");
fixed = loadFont("Consolas-Bold-16.vlw");

// list all the available serial ports for debugging
//println(Serial.list());

// open and initialize serial port
//myPort = new Serial(this, Serial.list()[1], 57600);
myPort = new Serial(this, "COM5", 57600);
myPort.bufferUntil(1f); // buffer until line feed
}

// =====
// MAIN DRAW/PROCESS LOOP
// =====
void draw()
{
  background(0); // black
  noStroke();

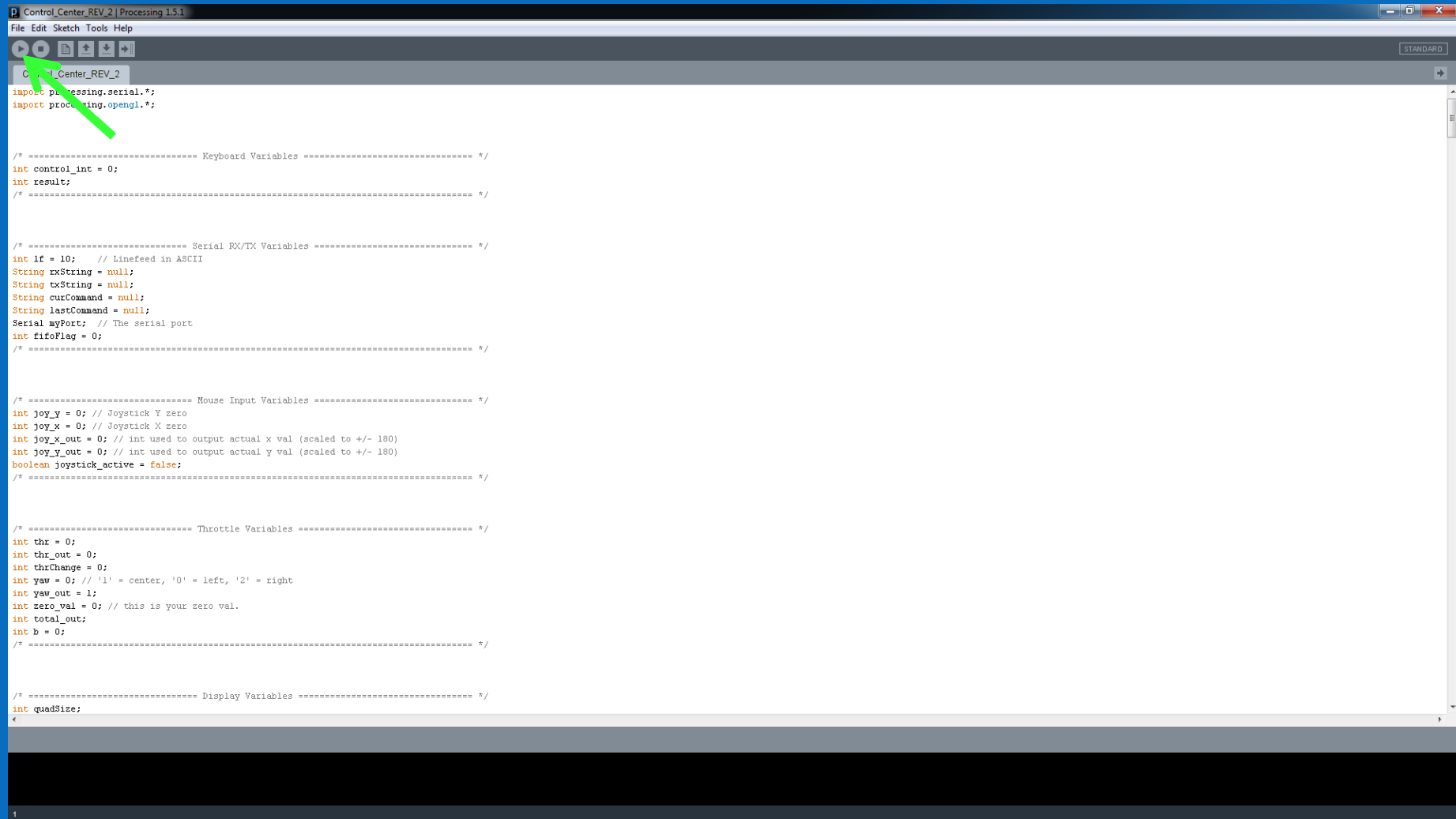
  // scale current joystick position to 0-360
  // (controlled by mouse drag or arrow keys)
  joy x out = joy x * 360/joystickSize + 180;

  #180180001
  at processing.core.PApplet.run(Unknown Source)
  at java.lang.Thread.run(Thread.java:662)

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```

Change "COM5" to the port your Xbee is plug into

Click Play



```
Control_Center_REV_2 | Processing 1.5.1
File Edit Sketch Tools Help

Control_Center_REV_2
import processing.serial.*;
import processing.opengl.*;

/* ===== Keyboard Variables ===== */
int control_int = 0;
int result;
/* ===== */

/* ===== Serial RX/TX Variables ===== */
int lf = 10; // Linefeed in ASCII
String rxString = null;
String txString = null;
String curCommand = null;
String lastCommand = null;
Serial myPort; // The serial port
int fifoFlag = 0;
/* ===== */

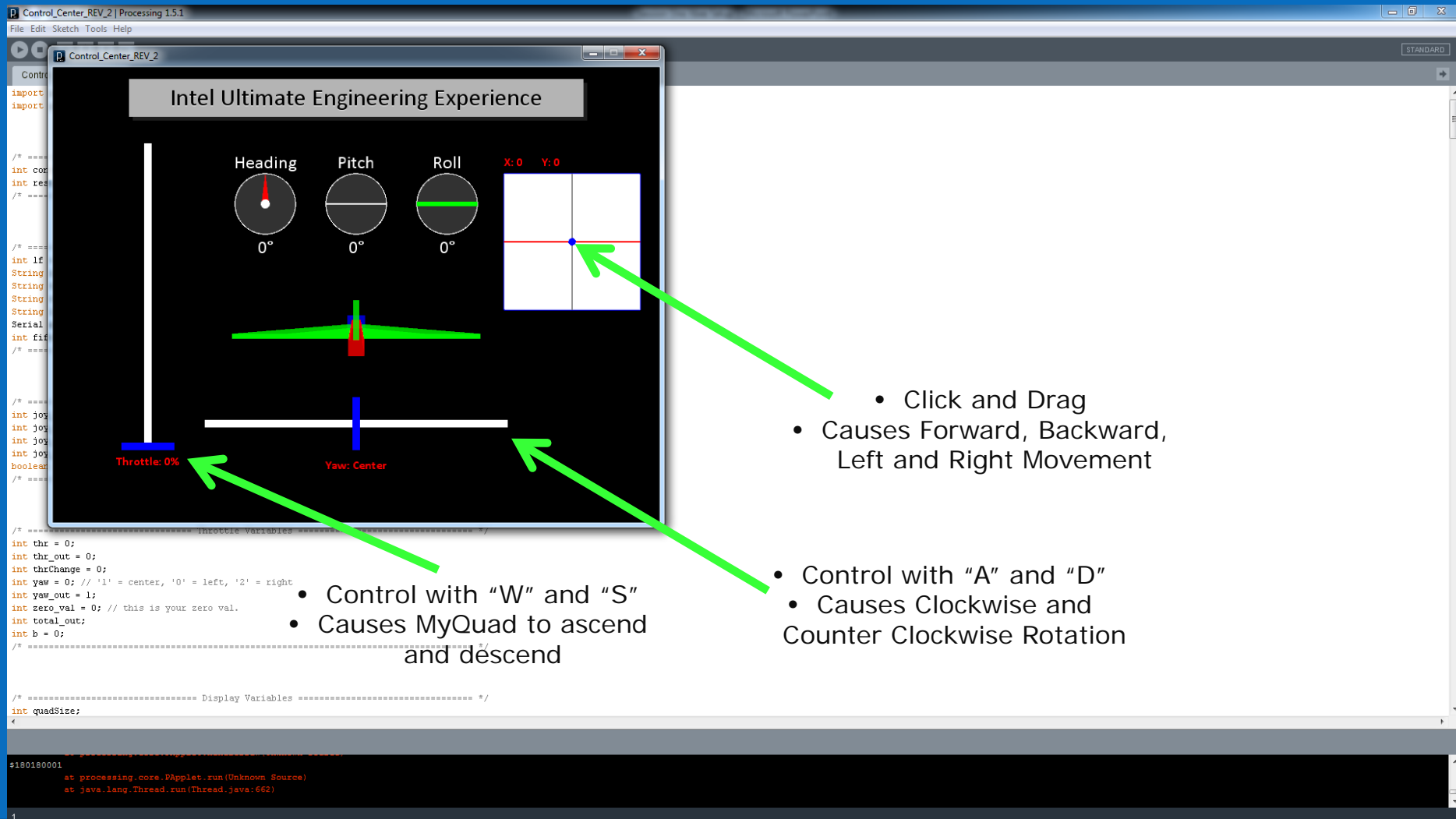
/* ===== Mouse Input Variables ===== */
int joy_y = 0; // Joystick Y zero
int joy_x = 0; // Joystick X zero
int joy_x_out = 0; // int used to output actual x val (scaled to +/- 180)
int joy_y_out = 0; // int used to output actual y val (scaled to +/- 180)
boolean joystick_active = false;
/* ===== */

/* ===== Throttle Variables ===== */
int thr = 0;
int thr_out = 0;
int thrChange = 0;
int yaw = 0; // '1' = center, '0' = left, '2' = right
int yaw_out = 1;
int zero_val = 0; // this is your zero val.
int total_out;
int b = 0;
/* ===== */

/* ===== Display Variables ===== */
int quadSize;
4
1
```



Click Modem Configuration Tab



The screenshot displays the 'Intel Ultimate Engineering Experience' interface within a Processing 1.5.1 window. The interface features a central quadcopter model with several control elements: three circular gauges for Heading, Pitch, and Roll, each showing 0°; a 2D coordinate system with X:0 and Y:0 axes; a Throttle slider at 0%; and a Yaw slider at Center. Green arrows point from the text annotations to these specific controls.

- Click and Drag
 - Causes Forward, Backward, Left and Right Movement
- Control with "W" and "S"
 - Causes MyQuad to ascend and descend
- Control with "A" and "D"
 - Causes Clockwise and Counter Clockwise Rotation



Backup