Introduction  
Objective:  
The objective behind this 3756/4814 collaboration project is to develop scouting software to complement a hybrid paper/electronic scouting system, to be released to the public when it is fully developed.  
The Scouting Structure:  
The scouting structure works like this: scouts use "Bubble Sheets", filling in the bubbles to count stats for a robot in a match. After each match, the sheets are then scanned into a folder on a scouting laptop. The scouting software is then run, using vision recognition to extract the data from the sheet. The data is then saved to a CSV file, where Microsoft Excel can be used to manipulate the data in whatever way the scouting team desires.  
The Software:  
The software has two functions. To map a template bubble sheet and to extract data from the scouting sheets.

Format New Sheet  
- Print and completely fill out bubble sheet  
- Import into software, click on bubbles to create coordinates of each bubble - Each bubble section made of up a new BubbleGroup object.  
- Each individual Bubble instance of Bubble class  
  
 Import Data From Image Folder  
- field for file target for template data (for reading bubble group objects from file)  
- field for folder target where images are stored   
- Import/GO button  
Folder level:  
- Scans folder for image files, based on filenames (compare to an array that keeps the names of those already scanned maybe?), it imports any that have not yet been imported   
File level:  
- Check color/density at coordinates of each bubble, in each bubblegroup  
- Exports the results (page data set) to CSV (comma separated values), with /n (newline) after every page data set  
- Every set of data (page data set) extracted from a sheet will be a new line in the raw data excel sheet

ClassesBubbleGroup Class:  
Variables:  
- BubbleGroup arraylist  
- Bubble[] Array of bubbles  
- int Bubble Count  
- String name

Functionality (methods):  
- constructor (title as param?)  
- check state of all bubbles in group, and sum the total  
  
Bubble Class:   
Variables:   
- x coordinate  
- y coordinate

Functionality (methods):  
- constructor (coordinates and name as parameters)  
- delete  
- check if filled (THIS IS WHERE VISION CONNECTS)

## GUI LAYOUT - Create Template

**(Scanned Template Sheet/Image)**(Click to mark bubble coordinates, with Bubble Group highlighted)

Example1  
- Example1\_1  
- Example1\_2  
- Example1\_3  
- Example1\_4  
 *Delete Bubble*

**(Controls Pane)**

**Groups  
Add Delete**

**Bubble Groups**

## GUI LAYOUT - Scan Bubble Sheet

**(Home pane)**

**Scan Bubble Sheet**

**GO**

Excel File location:

Image Folder location:

Template File location:

**(Collect Data Pane)**

## GUI LAYOUT - Home/Open/Main

LOGO  
3756/4814

**Create Template**