Dhruv Khurana
dkhurana
15-494 Final Project

## Instructions to run msmFinal.fsm

1. Replace program.py with the included program.py (adds a box to the camera image to show template region).
2. Run genfsm on msmFinal.fsm and run simple_cli.
3. Call runfsm on msmFinal.
4. Either:
   a. Bring your template image into the yellow square and type 'tm y'.
   b. Use old template saved from previous run of the program by typing 'tm p'.
5. Whenever you want to classify the current frame, type 'tm y'.
6. To stop the program, type 'tm n'.

Note: For robustness, any tm other than the specified ones default to the action of 'tm n'.

## Instructions to use the Classify node

1. Either:
   a. Have a file named template0.jpg in directory.
   b. Call SaveImage("template"), to save current camera image as template.
   c. Optionally, call ShowTemplate() to show the actual being used.

2. Call Classify(confidenceThreshold, overlapThreshold).
confidenceThreshold refers to closeness of detected images to template. Varies by template and lighting conditions. Recomended 0.15-0.35 for hand drawn images, and upto 0.6 for printed markers.
overlapThreshold refers to percentage of overlap in bounding boxes before boxes are merged. Recommended to set very low values <0.2 if markers in different locations. Increase value if markers right next to each other. Recommended not to set to 1.

3. Classify() returns a dataevent with an array of the tuples of the centerpoints of all detected markers.

Dhruv Khurana
dkhurana
15-494 Final Project

# Other files

match.py: Run livestream for algorithm. Requires already stored template image (any size is fine).

Run match(template,confidenceThreshold, overlapThreshold) where,
template is path to template image.
confidenceThreshold and overlapThreshold are same as above.
showEdges1 and showEdges2 are debugging parameters that show every step of the template matching process. Do not set to True with livestream.

matchWithFiles.py: Run algorithm on files in provided folder. Requires already stored template image (any size is fine).
Run match(template, imagefolder, confidenceThresh, overlapThresh, showEdges, showEdges2) where,
template is path to template image.
testDirectory is path to directory with images to be run on.
confidenceThreshold and overlapThreshold are same as above.
showEdges and showEdges2 are debugging parameters that show every step of the template matching process.
showEdges can be really slow since it draws all bounding boxes. showedges2 on the other hand, is pretty fast, and the waitkey can be adjusted to change delay or wait for keypress (change to waitkey(0) for keypress).