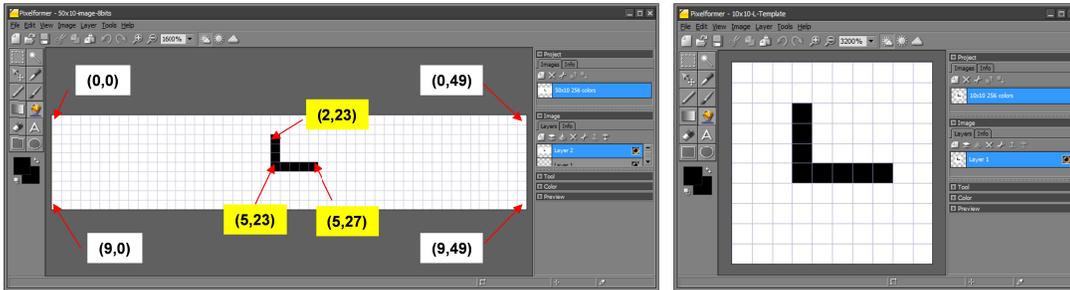
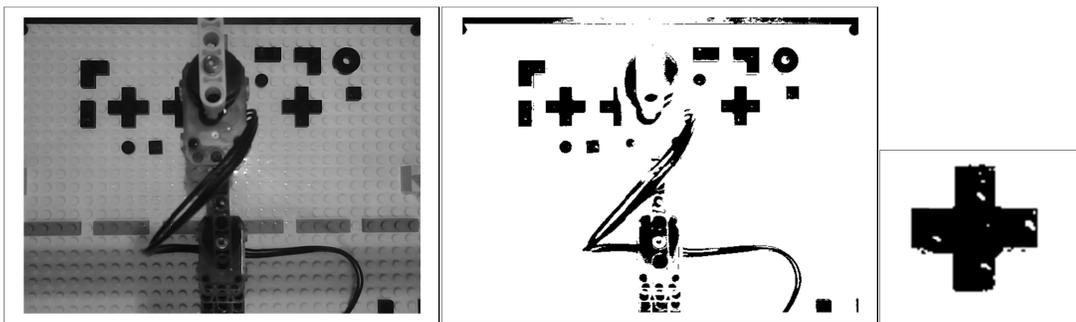


## Homework – Object Tracking

In lecture, the (50x10) image and (10x10) template (see below) were introduced. The notes showed the sliding process to comprehend why matchTemplate yielded a (20, 0) location result.



1. Use Pixelformer to create your own 50x10 and 10x10 pixel map and corresponding PNG files. For example, replace the L-shaped figure above with say, an X-shaped one.
  - A. Annotate your pixel map (e.g. cut-and-paste the figure in PPT or DOC) with relevant pixel locations (5-points)
  - B. Export your pixel maps to greyscale (256-color 8 bit per pixel) PNG files. Include these PNG files with your homework (5-points)
  - C. Provide a series of sliding figures demonstrating the predicted match result (10-points)
  - D. Write a SSD program to calculate the match result. Include a screenshot of your SCE program, or cut-and-paste your SCE code into a text file and include in your PDF homework. Also, include a screen shot of the match result. The actual SCE file is not needed. Contrast this match result with “C” above (10-points)



**Figure** View from Lego Camera Tower as greyscale image called `greyFrame.png` (left), thresholded frame called `thresholdedFrame.png` (middle), and template called `crossTemplate.png` cropped from thresholded frame (left). These PNG files are available from the course website.

2. Write a Scilab program using the PNG files above and SSD to report the template's location in the thresholded image.
  - A. Provide a screen shot of the Scilab output (10-points)
  - B. Using Pixelformer to import the thresholded frame. Provide an annotated screen shot showing the pixel location(s) reported by Scilab and the actual pixel location(s) of the Lego Cross(es) in the image (10-points)
  - C. Provide source code for your Scilab program (5-points)