

Running the LSPM from the beginning:

1. Turn on the RCX brick
 - a. The red button on top is the power button
2. Run the software icon on the desktop labeled "Reset Lego RCX Brick" and wait until the reset is complete. The brick will beep a slightly 'happy' tune.
 - a. close the screen once it has finished
3. Run "SCL Setup Utility"
4. Turn on the LSPM using the silver switch located on the back of the LSPM. The table may or may not move when you turn it on, it is okay either way.
5. Check on the SCL Setup Utility screen to make sure the software has registered the microscope is on.
 - a. The screen should read something like {255012124}
6. Run "Load Laser Control" from the desktop.
 - a. Wait for it to complete, and make sure the laser has turned on.
 - b. If not, you may need to retry the above steps. If you try it again and still no luck, restart the entire system. Power off the computer and turn it back on, and turn off the LSPM to turn on again in step 4.
7. Run "Lego SPM" from the desktop
8. From the LSPM control screen that comes up, i.e. the scan menu, there should be pre-determined settings for running the LSPM.
9. If no settings show up, or if everything is zeroes, set the following for a quick scan:
 - a. Center Coordinates: X= 3.125 Y=3.125
 - i. You only have to enter x=3 and y=3, the software will autocorrect to 3.125 later.
 - b. Length Per Step: 1 x 1 (from the dropdown menu)
 - c. Scan Area: 9 x 9 (blocks in the 1 x 1 length step)
10. Hit Scan. Theoretically, the scan should run without any problems and should take around 15-20 minutes.
11. When the scan is finished, you can hit scan again (it may be labeled rescan or something related) to continue scanning with the same parameters. The LSPM will simply start over. Or, you can use the 3D Graph and other features to show the observers the capabilities of the data that has been collected.

To fix the laser if it is not hitting the cleared brick just below the colored top pyramid, remove a Plexiglas shield to access the LSPM cantilever arm. Hold the arm toward the needle and move it carefully and slowly in the direction that will correct the laser. You may have to play with it for a bit, but do not try to force it too hard. I find it easier to move the laser past where it is supposed to go, then when you let go of the arm, it will hit its mark. When it is hitting the center of the clear red brick, the brick should appear to glow with the light. You can perform this procedure anytime the laser is on, whether it is right after you turned on the "Load Laser Control" or while the LSPM itself is running (there is no problem with this as long as the LSPM does not try to move and break off the tip).

Lego Scanning Probe Microscope
Nicholas Vargo
nvargo@purdue.edu

Running the LSPM when it is already on:

If the LSPM is turned on, and the red laser light is visibly hitting the top of the tower, all you have to do is hit scan on the software on the screen.

Quick method to turn on the LSPM:

1. Turn on the RCX brick
 - a. The red button on top is the power button
 - b. Hit the green button to start the RCX
2. Turn on the LSPM using the silver switch located on the back of the LSPM. The table may or may not move when you turn it on, it is okay either way.
3. Run "Lego SPM" from the desktop
4. Hit the scan button when the software loads
5. When the scan finishes, hit scan again to restart the program.