Using the software to control the robot arm is fairly simple and straightforward. By following these steps in order, the robot will be guaranteed to work as described.

1) Connect to the robot.
   Upon loading the application, simply click the “Connect” button in the bottom-left corner of the application. This will attempt to connect to the robot automatically. If this process fails, check the USB connection to the robot. Once connected, ensure that you can move the robot using the W, S, A, and D keys. You can also use keys Q and E for the servo, and M and N for the magnet.

2) Calibrate robot position.
   First, the robot needs to be calibrated to its home position. To do this, open the “Calibrate” menu and select “Go To Home”. The robot should automatically calibrate its home position. Next, open the “Calibrate” menu and select “Robot Position”. Manually move the robot to a corner of the paper, ensuring the magnet is as close the the corner as possible, and click the corresponding “Calibrate” button. Do this for each corner of the paper, as well as the desired location for the stacks.

3) Select input source.
   The most common input source is a camera so your robot has a live feed of the paper, however for debugging you load an image or video as the image input. To select a camera, select the menu File->Camera->0. If you have multiple cameras connected to your device, you may need to try the other numbers until the correct camera is found. To load an image or video, Select File->Load and select the desired file.
   NOTE: There is an optional “Flip 180” button to flip the input image upside down.

4) Adjust threshold.
   On the main screen, move the slider left and right until the middle image has a visible paper outline, all shapes have a well defined outlined, preferably completely solid black as well, and there are minimal shadows seen. Also keep an eye on the detected shapes on the right most picture to help find the right value.

5) Calibrate paper position.
   Open the menu Calibrate->Paper. This is where you highlight the paper so the program knows where to look for shapes. You may attempts to use the auto detection feature, however it is not guaranteed to work. To calibrate it manually, move each corner by grabbing the circle and putting it over the corner of the paper.

6) Run stacking program.
   The robot is now ready to stack shapes! Simply press the button in the lower-right corner labeled “Stack!” and the robot will automatically stack all shapes based off the calibration you provided.

7) Additional Features.

By right clicking on any picture box, you may change which image that is displayed. This is good for debugging problems. Clicking on the left most picture will display the position you clicked, and the color on the image at that location. In the menu Settings->Robot, you can adjust the speed of the robot. You can also save a screenshot of the input image by selecting File->Save->Screenshot.