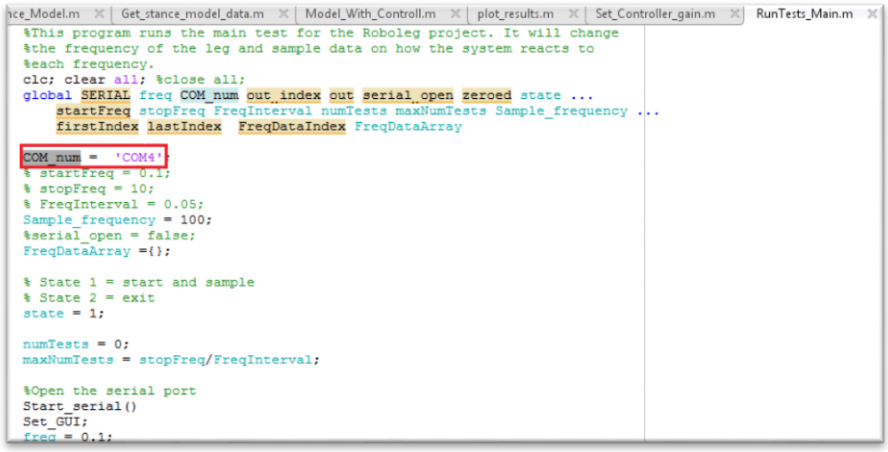
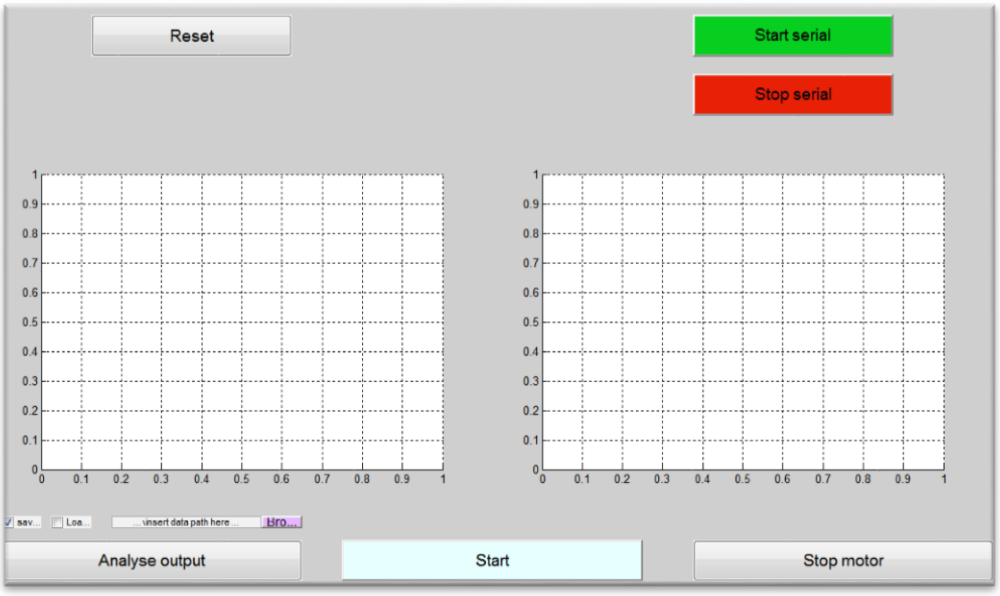
How to run the MATLAB script:

Running an experiment:

1. Open and run `RunTests_Main` , make sure that the correct serial port is set at `COM_num`:

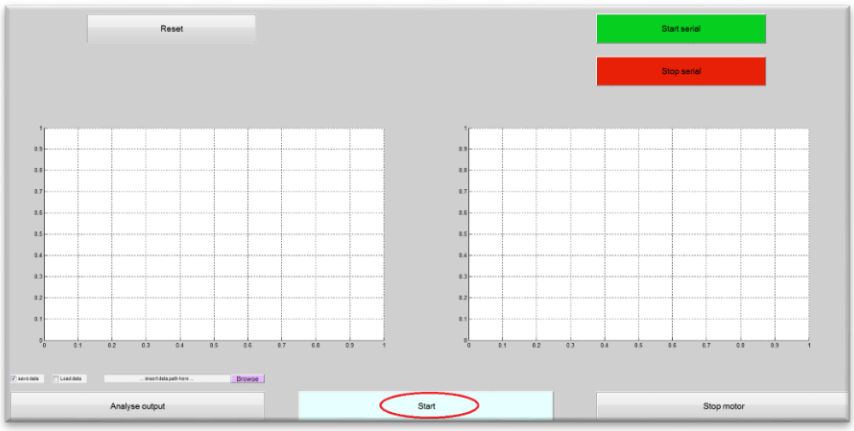


2. The following GUI will open:

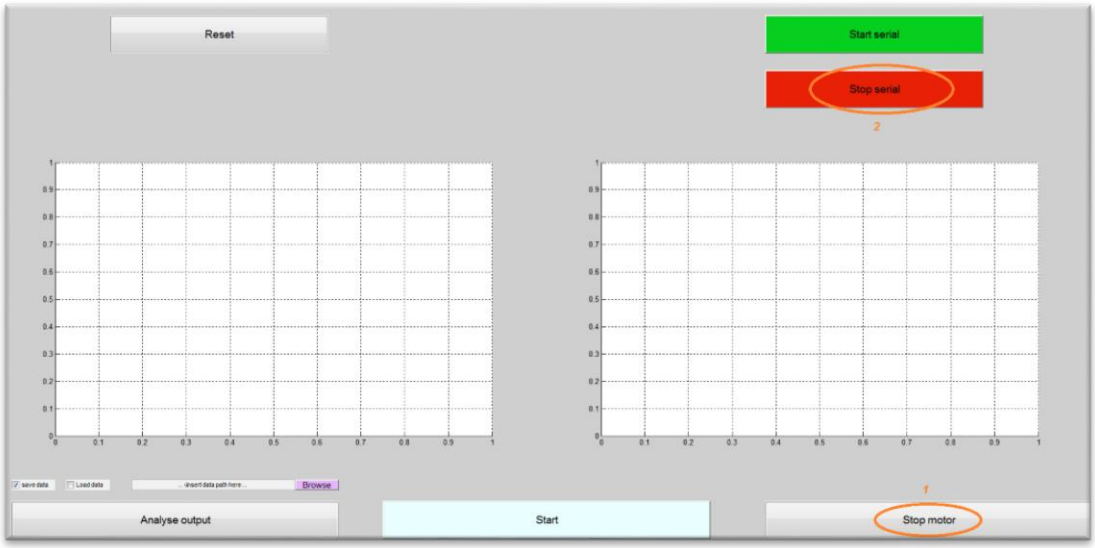


3. Press 'Start' to send a value of 1 to the Arduino controller. The controller will start executing the loop that is currently uploaded to the card, and data will be sent to the computer via the serial port and saved in the variable 'out'.

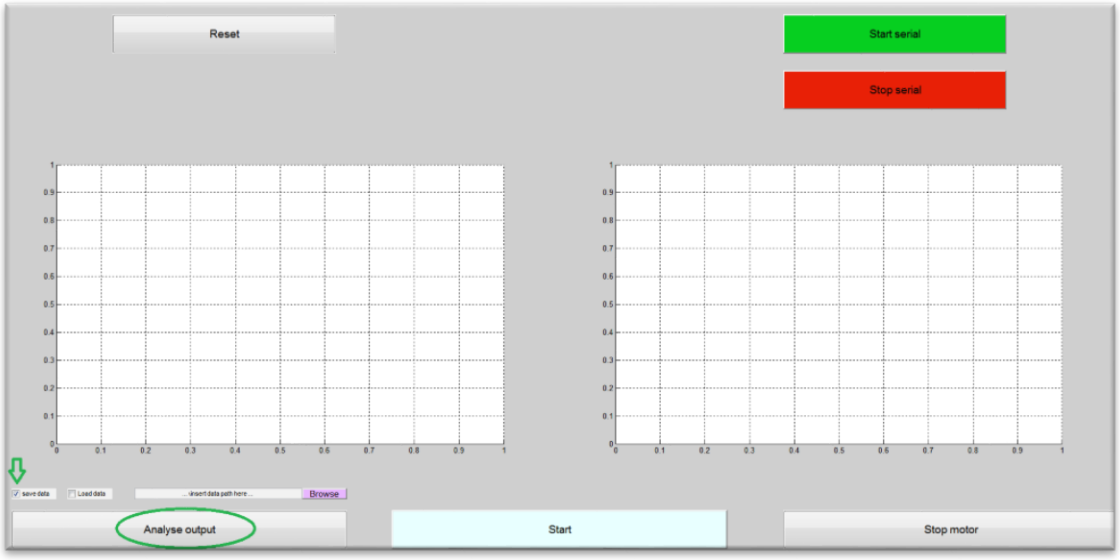
   'out' is a cell array that contains the data lines as strings.



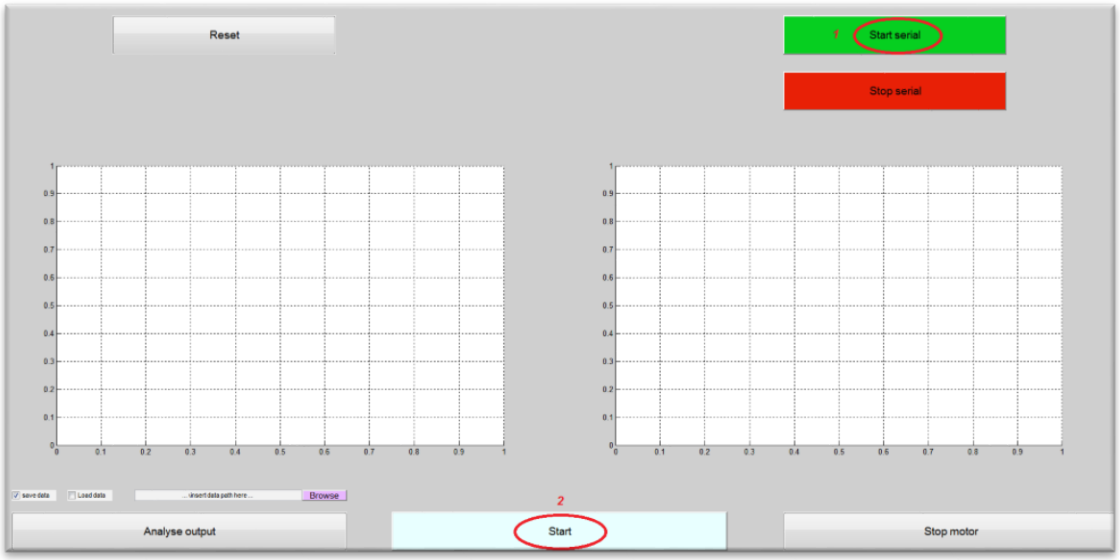
4. To stop the experiment/receiving data press 'stop motors'. It is recommended to then also press 'Stop serial' to avoid conflicts with the Arduino IDE.



5. To examine the obtained data, and/or to extract the data from 'out' press 'analyse output'. Checkbox 'save data' is optional, to determine if the data will be saved. If checked, the data will be saved in the current folder with a file name that includes the date and time.



6. To start a new experiment, press 'Start serial' (just in case 'Stop serial' was pressed earlier) and repeat steps 3-5.



Extracting existing data:

1. If the GUI is not already up, open and run `Set_GUI`.
2. Make sure the checkbox 'Load data' is checked. Use Browse to find file, or type file path directly. Press 'Analyse output' to examine data.

Notes:

- Pressing 'Analyses output' will save the data in numerical arrays as 'tvec', 'uvec' ,'theta1','theta2'.

- Pressing 'Reset' will clear the graphs but will not erase the current existing data. 'Analyse output' can be used again while the data is still in the workspace.