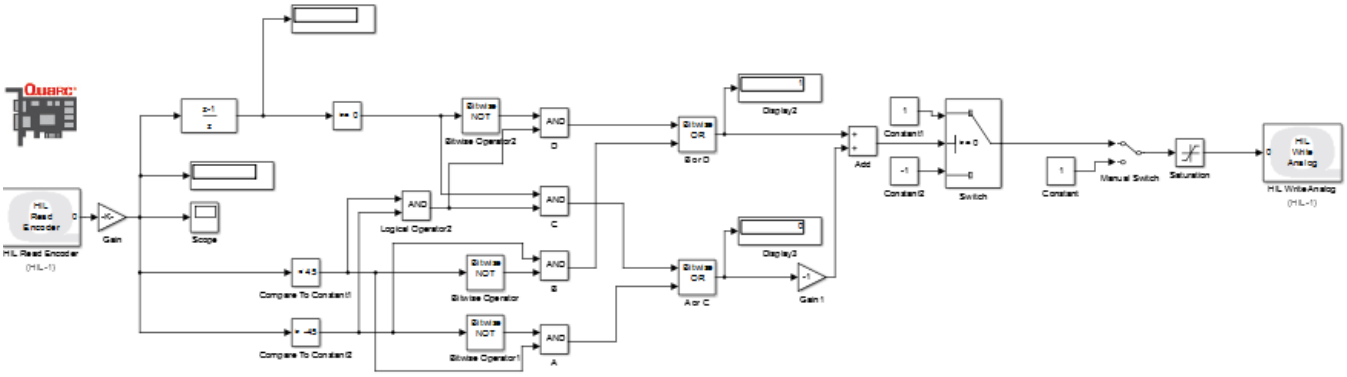
1. Items done this session:

Review the final version of the last lab.




Four logical conditions decision for this version of design:

A: position < -45 degree -> positive direction.

B: position > + 45 degree -> negative direction.

C: position between +45/-45 degree and in the positive direction -> keep positive direction.

D: position between +45/-45 degree and in the negative direction -> keep negative direction.

2. Items for next session:

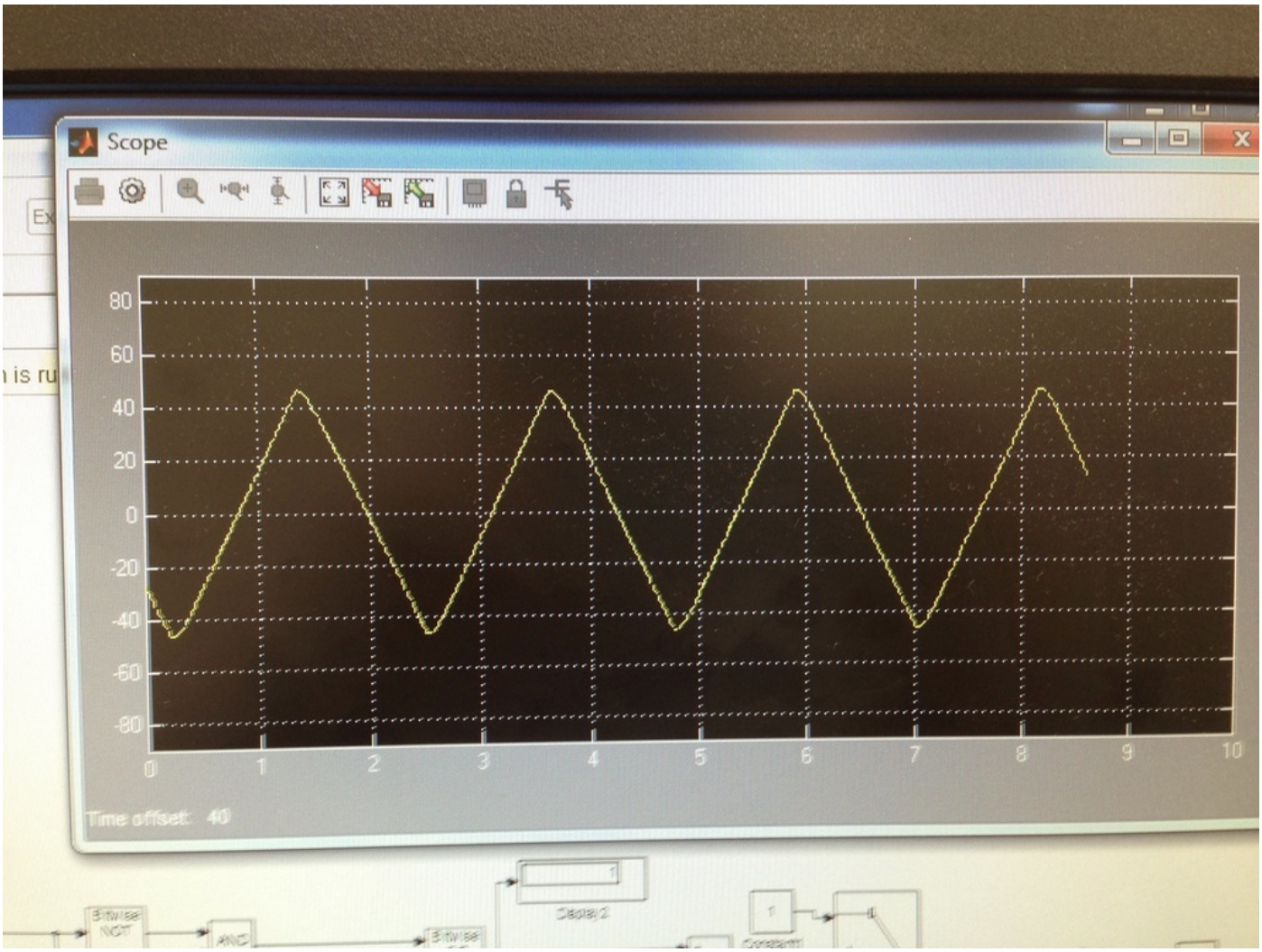
Process for next lab exercise.

3. Problems / Concerns:

Thought of improved version of precise position control system: we can put a sin wave and multiply 45 as an input signal. Then feeding the desired input signal to a controller, which simultaneously feed with error signal from the output signal(Read). So the system would be precisely controlled by the desired input signal, and then the shape of the output can be controlled as we desire no matter the change of gravity and/or other disturbances.

Thoughts of some questions:
Could the system be as a position control device?
-> The system cannot be used as a position control device because it just fixing in four logical conditions. (as the A, B, C and D written in the first section.) When other conditions involved in, such as force disturbance or gravity change, the system output would not be as the same shape as before disturbance occurred.

What is the shape of the motion when looking at the position using the scope?
-> Continuous triangle wave.




Can you control the shape of the motion while oscillating?
-> The only controllable variable is the speed of the motor which defaults in one and range between -5 to 5 saturation value. When changing the voltage of the motor, the motor speed up and the frequency of the triangle wave increases.
What can you say about the speed of the link throughout the entire oscillating region?
-> The speed of the link is related to the amount of the voltage that put into the motor.
Can you predict the shape of the motor if the SRV-02 unit would be tipped on its side?
-> The general direction and behavior are predictable. When we tipped the link inside the range, it would change the direction. And when we tipped the link to the outside of the range, it would go back to the original range. However, through the different disturbance, the precise position is not predictable.
Does this controller have any predictive nature?
-> The system has a predictive shape when no other disturbances occur.