Omar Rodriquez and Josh Privett

502-Group 5

2/18/2015

Lab Report for Lab 2

The purpose of this lab assignment was to detect a waveform created by a waveform generator and then display whether it was a square or triangle wave on the LCD display. We were able to do this through a large amount of trial and error. We stored 100 values read in from the function generator to compare. As a square wave would have values very close together more often than a triangle our initial approach was to find values very similar to their neighbors and add them to a duplicate count. If that duplicate count exceeded a threshold the wave form would be stated as a square. This ran into problems though as sometimes flukes and small enough differences could happen with a triangle wave length. Our next attempt was to try an average of the values read. As a square has higher peaks and lower lows, the average would tend to be higher or lower than any average for a triangle. As such we looked at the average of values read from the triangle wave. From there we set a threshold pair of values. However this did not work either. We took time to look through our code for error to find that our duplicate/average checking functions were inside a for loop they should have been outside of, which caused all the problems with both methods. We moved the checking outside the loop and the average method worked perfectly fine in real time. We did not check the duplicate method but it could also have potentially worked. What we learned was to trace through the entire execution instead of smaller parts as we could have saved ourselves a lot of time if we had just checked that for loop. Overall this was a good introduction to interacting with a function generator and will be useful for the next lab.