This week I focused on the communication between the embedded system and the PDA as well as the steps needed to control a LCD screen using micro processors. The information gathered on the LCD screen made me concluded that developing a system to drive our LCD screen would require too much work and would further delay our project. To reach our display requirement we will invest in a prepackaged LCD monitor with drivers included. Our task with this LCD screen will be converting the Blackfin processed data from a numeric value to a graphical display which can be used by the graphics controllers. The more information I gathered about how to create a functional LCD screen the more I realized this in itself was a project. I would have to fully understand how to implement buses and how to determine what controllers select resolution and color depth. Another task was interpreting the timing diagrams, which essentially synchronizes the LCD screen. An example timing diagram is shown in figure 1.

I looked online and found nothing out the straight interpretation of LCD timing diagrams. I hoped to find a few tutorials that would describe the steps needed to implement this information to create a working LCD screen. However I was unable to find any such information. I talked to a computer hardware expert and described our problem. He said from his experience, making all of the drivers required for a LCD screen would take months and suggested we just buy the parts/drivers needed to control the screen.

With this knowledge, I moved onto the PDA part of the project. Pending on the embedded Blackfin and the PDA, I decided to test the remote control ability of LabView. My initial test was to see if the examples from LabView allowed me to control a VI at one computer from another one via Ethernet. With hardly any problems I was able to control a specified VI remotely. With this expected success I started investigating
concepts that would allow me to remotely control a VI through a wireless connection from a PDA to a Computer or an embedded system. I first researched different types of PDA’s and their most common method for wireless communication. I didn’t select a PDA for use because we will be provided with one. The most common method for wireless communication was IrDA. Seeing how this was included in every PDA that I looked at, I assumed that IrDA is included in all PDAs as a standard feature. For some guidance about how to approach this programming task I looked at two examples. First was the remote control VI. This computer because specified what computer to connect, what VI to take control of and what comm port. The next were the IrDA client/server VI’s which were more complex, but with some analysis and alternation I will be able to merge the two different VIs into one. I also started researching on how to implement these VIs into the PDA target and what is needed to simulate the PDA until we obtain an actual PDA.

Future Work

I will continue on developing and testing PDA communication with a computer via IrDA wireless. I suspect some type of antenna is needed for the computer/Blackfin chip before it will be able to communicate wirelessly. I will contact NI and analog devices about this adapter Monday. The LabView program shouldn’t pose too much problem as long as I can obtain the correct support from the developers. I will continue research the Blackfin information that is relevant to the applications I am in charge of.

Project Review

The project is going extremely slow, but at least we have some promising leads to get a functioning device by the end of the semester. Hopefully we can pick up the PDA this week so I can start testing it’s ability to control a computer run VI.

Hours

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