CPE4390

Lab 4

1-Wire Serial

This is very much an exploratory lab. Use the code provided to get started and then feel free to explore different devices or processes on your own. The goal is to get a 1-wire device working and become familiar with the hardware and protocol and then explore something on your own.

You will need to include OneWire.h and OneWire.c in your project. If you are using the temperature sensors you need DS18x20.h and DS18x20.c in your project. Use the OWMain.c file provided to get started. Don’t forget to add LCD.h and LCD.c to your project. All devices will use RJ0 (PORTJ pin 0) as the DQ line. You will need a 4.7K – 5.1K pull-up resistor from DQ to 3.3V

1. Start with one of the temperature sensors. Use the provided code to read the sensor and display the results.
2. Try one of the following:
   1. Read and display the embedded ID
   2. Put two devices on the bus and read both of them.
   3. Set the alarm on one of the temperature sensors.
   4. Try out one of the other 1-wire devices – The EEPROM’s have a message saved at 0x0030. See if you can read it.
   5. Something different that interests your group.