Jordan Ditzler
ECE 447-203

Lab 9 Report

Introduction

This lab has tasked us with interfacing with a barometric pressure and temperature sensor using inter-integrated circuit protocols and to gain further experience interfacing with a graphical LCD using SPI. We are to display both the pressure and temperature, read from an external BMP280, on out TFT display. The LCD will also display the temperature, also updating semi-frequently.

Microcontroller Concept

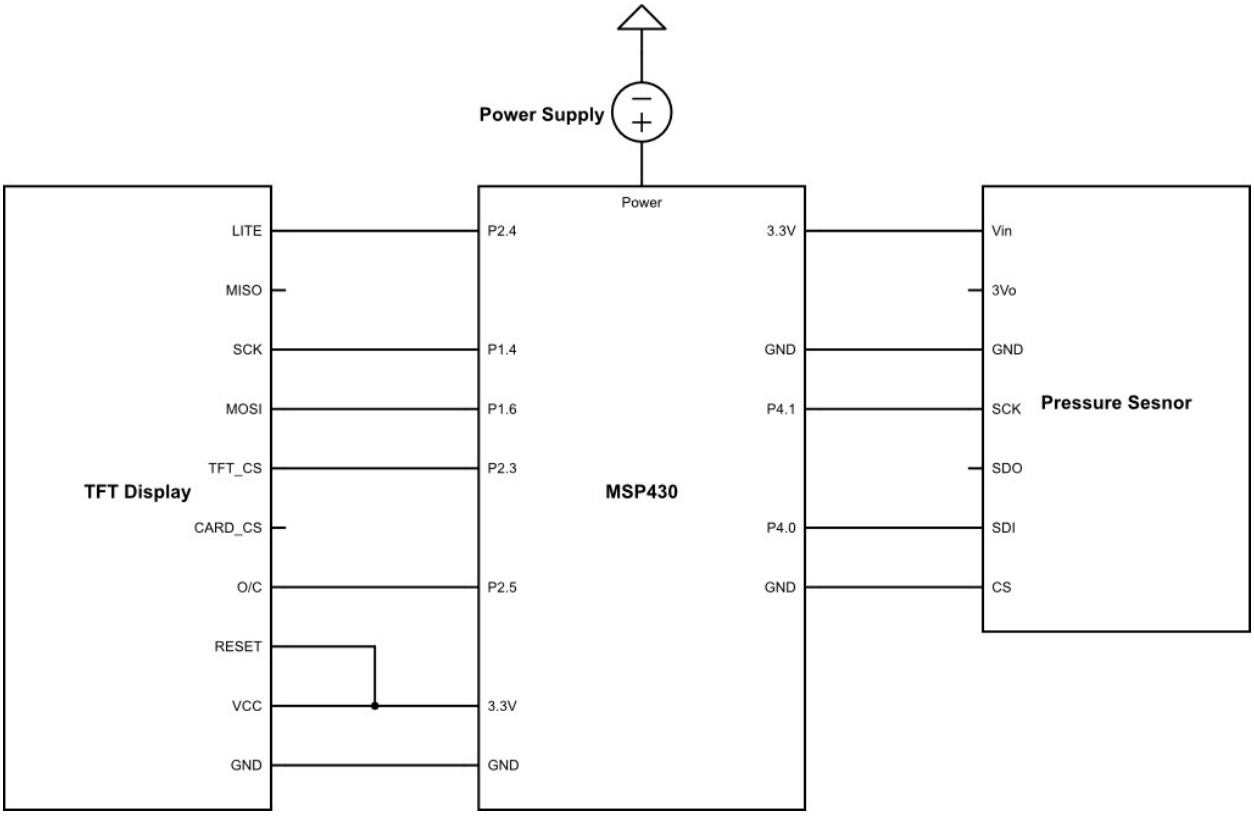
- GPIO 1.3,4,5,6 + 2.3,4,5 + 4.0,1
- LCD

GPIO 1.3,4,5,6 + 2.3,4,5 are used for communicating with the TFT display. These pins are used because it was given to us.

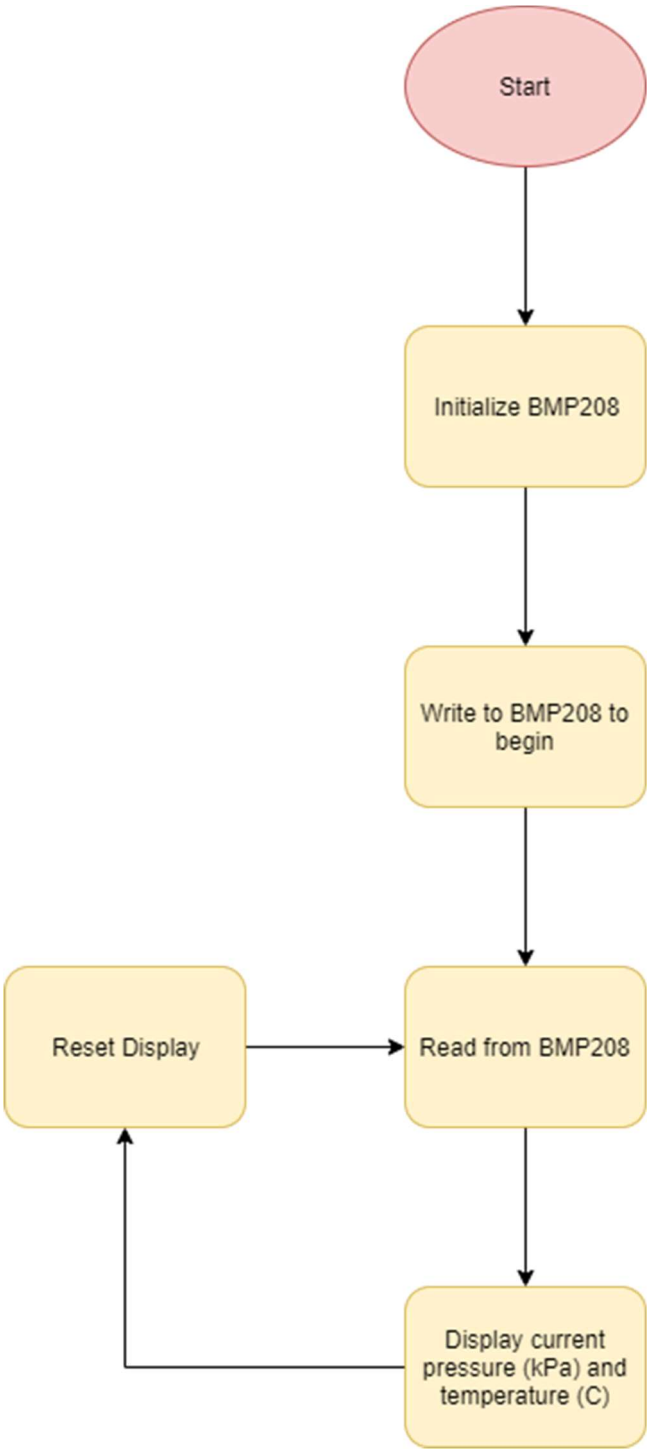
GPIO 4.0,1 are used for communicating with the pressure sensor. They are used because they are the SCL and SDA pins for the MSP430.

The LCD is used because it is the best way to communicate numerical data with the user.

Hardware Design



Software Design



Conclusion

I successfully implemented the pressure sensor in combination with the TFT display. Both the temperature and pressure are shown on the TFT display, updating semi-frequently. Both the temperature and pressure are both read from the BMP280. All desired functionalities are implemented.