Name: Sayali Mule

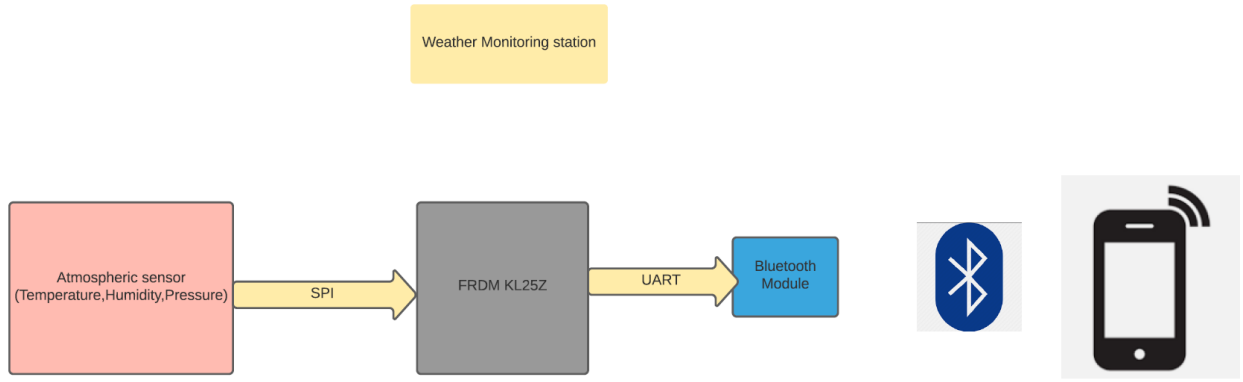
Project: Weather Monitoring Station

GitHub URL:
https://github.com/samu7988/PES_Project_weather_monitoring_station

1)What functionality will your project demonstrate?

The goal of the project is to implement a weather monitoring station. The entire system consists of atmospheric sensor (spark fun), FRDM KL25z and a Bluetooth module. The atmospheric sensor has capability to detect temperature, pressure and humidity.

The FRDM board will read the values of temperature, pressure and humidity from atmospheric sensor using SPI interface. Once the values are read by FRDM board, the values will be sent periodically to an Android application on mobile phone through Bluetooth protocol.
The FRDM board is connected to Bluetooth sensor using UART protocol.



2) **What technologies will you use? For those areas we have covered in class, how will you demonstrate deeper knowledge than what we covered in the biweekly homework assignments?**

Technologies used: SPI, UART, state machines, interrupts, timers.

In this project, I am basically trying to setup a system that can read value from sensor and display the values on android application. This involves developing SPI interface which we haven't covered in this assignment. Also, this project combines various subsystem components(UART, timer, state machine,etc) that we have developed from Assignment1 - Assignment6 which may require some thought on how to integrate those components.

3) **Does your project require any additional hardware? If so, what will you acquire, and what is your plan for assembly? (Again, my focus is on the software you develop. I am asking about your hardware plans just so I can ensure that whatever you are planning in this area is relatively straightforward.)**

Yes, the project needs additional hardware. I am planning to purchase those sensors from spark fun and amazon as listed below. Assembling those sensor would require soldering the header pins to the sensors, and by using connecting wires , we can connect those

sensors directly to FRDM board.
It will be using following external sensor/hardware:

a) Atmospheric sensor(https://www.sparkfun.com/products/13676)
b) Bluetooth module(https://www.amazon.com/HiLetgo-Wireless-Bluetooth-Transceiver-Arduino/dp/B071YJG8DR)

4) **Finally, what is your testing strategy for your project? Will you develop automated tests, will you use manual tests, or will you use a mixture of both?**

The testing that we are planning to perform are mostly manual.
The manual test/verification plan is as follow:

Testing	**Estimated date**
Verify SPI interface	25 November
Develop firmware for atmospheric sensor to read value for temperature, pressure and humidity	30 November
Verify UART interface with Bluetooth module	5 December
Do system test to verify that temperature, pressure and humidity are sent to mobile	10 December

Revised project proposal as per feedback from Professor

1) **First, I assume you will be using some off-the-shelf app on the Android phone, right?**

Yes, I am using the android application ***Bluetooth terminal HC05***.

2) You're simply using Bluetooth to create a wireless serial port? If so, you should say this?

Yes, I will be using the Bluetooth module to send the values of humidity, pressure and temperature.

3) Which UART device will you connect the Bluetooth device to?

UART0 would be used for Communicating with PC. To communicate with the Bluetooth module, I will be using UART1.