FIREBADE LAB

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CSC230

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FireBase Lab

**INTRODUCTION**

This lab was like ThingSpeak but simply used a different database, Google Firebase. The main difference between the two labs is that students were able to see different way to connect to a database and control the M5 unit from the database. This was possible because the Firebase Database is a Realtime Database.

**IMPLEMENTATION**

WHAT DID I USE?

I had the Base Setup of $2224. A Firebase account, which was free and the Wifi Library from Arduino, also free. Also, the IOXHOP libraries, and a library I made from scratch, the NetworkConnection library. The software element of the project is free.

WHAT DID I DO?

This lab I really wanted to challenge myself. I decided to make a class object to hold my network connection element which connects to the internet. The main goal was to connect to Google Firebase be able to display the LED status on the database and then be able to affect the M5 unit via from the database.

For the start, I had to figure out how to make a class in the IDE… once it clicked this was C++ almost to a “T” (HINT: STICKC… LOL), I was able to use my pass knowledge and experience to make a class easy and pointers to the secrets data.

I make the Firebase account next; this was easy to setup and not much of note. Then took the secrets (HTTP) address and the key and placed them into me secrets tab.

Coding the class required .h header, and a .cpp C++ file to contain its declarations and the functions used in the main code.

The main code was simple, construct the network class. Then I made a set of function in the program to allow calls to the loop and setup to be simple and clean. I made a setup function that formatted the display to the M5 unit. Then mad a firebase setup and initialized variable for the database. Then made and LED control function to allow the firebase database to be able to receive and be pulled from to the unit in a loop.

**VIDEO LINK**

LINK - <https://youtu.be/azs4xQZcAZ8>

**PROGRAM BREAKDOWN**

**!!! PROGRAM IS TOO COMPLEX TO DISPLAY IN DOCUMENT !!!**

**Files are added to lab submission.**

**CALCULATIONS**

1. LEARNING api and syntax comparisons to C++ class building
2. Logic engineering to place Network Connection elents correctly in CLASS to be used correctly
3. Formatting the code for access to FIREBASE DATABASE.

References

CODE: Modified from Arduino IDE examples (Display, WifiClient), My Code (NetworkConnection).

M5Stack. (n.d.). Arduino Ide Development. m5. Retrieved April 10, 2022, from https://docs.m5stack.com/en/arduino/arduino\_development