

Temp1 Project Summary

The Design

The goal of this design project was to implement a contactless temperature sensor capable of accurately determining a person's temperature from a distance of at least one centimeter. In addition, the device needed to be easily transportable, capable of logging user and temperature information, capable of alerting the user if they had a fever, easy for unfamiliar users to figure out how to operate, and capable of running on a battery supply when not connected to a power source.

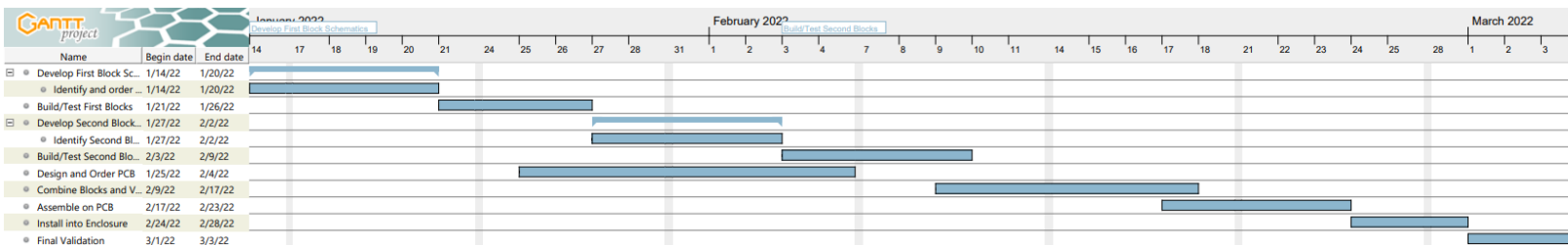
The purpose of this device was to enable people or companies to scan a person's temperature as a method of early Covid detection, without having to physically interact with them. The lack of physical contact was designed to limit the likelihood of the virus spreading if the person being scanned was in fact infected with Covid or another transmissible virus.

The Solution

After clarifying the design specifications, we met as a group to figure out how we wanted to implement the system to fit the requirements. We created a block diagram to outline the major components of the system and decided who should design each piece. We then created a project timeline to determine when project deliverables needed to be available. (See below)

We decided to focus first on the system components that would need to interact with a custom PCB, so we could order the PCB halfway through the project development cycle. Once we each completed our first block, we revisited the overall system design to determine what changes needed to be made. From there we revised our first blocks and simultaneously began developing our second blocks. When the PCB arrived and we finished designing all of the components, we assembled our prototype. Once completed, we tested the design to ensure it met the specifications, and made what optimizations we could with the time and resources available to us.

The Timeline



Lessons Learned

During the design process we learned many lessons. The foremost was that communication and collaboration is vital in a complicated team project. We originally planned to meet once a week on Mondays to discuss our progress and designs. However, we ended up scheduling many additionally meetings for design clarifications, corrects, revisions, and other necessary functions.

We also learned that perfect is the enemy of good. Since we had a very limited amount of time, we discovered that we needed to first create blocks that were functional, and then later, if time allowed, refine them to better meet our project goals. After all, a perfect thermal sensor isn't any good if there isn't a working power supply to power the system, or a working interface to display and record the sensor's findings.