Executive Project Summary

The original problem of the project design was to make a non-contact temperature scanner. This includes programming a microcontroller to control a proximity sensor, a temperature sensor, an OLED display, a buzzer and an SD memory card. The project can finally show the user the accurate temperature through different units. The project can capture the non-contact temperature measurement and store the user's temperature information for at least 24 hours. If the detected user temperature is higher than 100.4F, the system will give a warning via the buzzer to issue a beeping sound. Another problem that needed to be solved includes designing and implementation of the PCB board, along with the enclosure of the system.

The approach that was taken in the project is to formulate a reasonable plan at the beginning of the project by advancing through the project gradually by sticking with the assigned plan. When new challenges or problems arise, the plan is altered and revised accordingly to enable enough time and to actively seek solutions. At the beginning of the project, we spent a lot of time discussing and formulating the top level block diagram of the project. A good initial design can provide clarity by ensuring that the research was done correctly which will provide a lot of knowledge and point us in the right direction. We spent a lot of time on the initial design to make subsequent design and research easier. As the project progresses, we modified the initial design to complete the project. For example, for the choice of microcontroller, we initially chose the Arduino Nano as the main processor of the project, but as the project progressed, we decided to switch to Arduino Uno to make the project efficient. Secondly, the completion of the project is inseparable from the correct time management and from the on-time completion of each member of the team. The ability of team members to complete their individual blocks on time is the basis for the advancement of the project and for the overall plan. The team should complete the plan as quickly as possible to deal with unforeseen conundrums. For example, the delivery of the PCB board may take at least one week. The assembly of all the components and the board also takes time. Therefore, it was preferable that we should have the completed design and the order of the PCB board as early as possible to ensure that we can complete the task a few days before the deadline.

We learned a lot of lessons from the project. For example, how to achieve good teamwork. The team holds regular meetings every week and every member attends the meetings on time and is actively participating in the discussion of the project by formulating the plan. Effective communication between each team member and personal time management helped make the project progress more smoothly. With regards to the technology, we learned how to use the CAD softwares to design the PCB board and the 3D model of the enclosure for the project. Additionally, the usage of the 3D printing technology helped us implement the enclosure of the project. The teamwork, along with the individual time report showcases what each team member has done, along with the breakdown of the time spent per person and how it aligned with the project timeline.

A challenge that we have encountered during the process of making the non-contact temperature scanner was to ensure that all of the blocks were working synchronously. Likewise,

another hurdle that posed as a conundrum was the ability to use Fusion 360. Creating the schematic and PCB in Fusion 360 was a lot more difficult than anticipated due to the complexity of the program and how it caused the speed of our computers to run very slowly. The usage of the 3D modeling technology added more complication to the overall process as well.

ECE342 Final Project Timeline

PROJECT TITLE	Temp 2	COMPANY NAME	Oregon State University
PROJECT MANAGER	Karthik Gopalakrishnan	DATE	5/28/21

WBS NUMBER	TASK TITLE	TASK OWNER	START DATE	DUE DATE	DURATION	PCT OF TASK COMPLETE
1	**Project Conception and Initiation**					
1.1	Project Requirements	Group	4/2/21	4/5/21	3	100%
1.1.1	Project Timeline Creation	Group	4/4/21	4/5/21	1	100%
1.2	Block Diagram Design	Group	4/5/21	4/9/21	4	100%
1.3	Research	Group	4/2/21	4/9/21	7	100%
1.4	Weekly Progress Report	Nathan Raschkes	4/5/21	5/21/21	46	100%
1.5	Project Requirements Adjustment	Yuhao Su	4/7/21	4/11/21	4	100%
1.6	Electrical Schematic Design	Group	4/18/21	4/24/21	7	100%
1.7	PCB Design	Group	4/25/21	5/1/21	7	100%
1.8	Coding of the Project	Gregory Stapley	4/8/21	5/21/21	43	100%
2	**Team Exercises, Goals and Communication**					
2.1	Outline of Goals	Group	4/8/21	4/9/21	1	100%
2.2	Team Meetings	Group	4/8/21	5/21/21	43	100%
2.3	Communication Plan	Group	4/8/21	5/21/21	43	100%
2.4	Obstacles Encountered	Group	4/8/21	5/21/21	43	100%
3	**System Integration**					
3.1	Power Supply Block design	Nathan Raschkes	4/11/21	4/24/21	14	100%
3.2	OLED Display Block design	Yicheng Xiong	4/11/21	4/24/21	14	100%
3.3	SD Card Block design	Gregory Stapley	4/11/21	4/24/21	14	100%
3.4	Prox-Sensor Block design	Yuhao Su	4/11/21	4/24/21	14	100%
3.5	Charge Card Block design	Nathan Raschkes	4/25/21	5/15/21	21	100%
3.6	Buzzer Block design	Yicheng Xiong	4/25/21	5/15/21	21	100%
3.7	Coding of the microcontroller	Gregory Stapley	4/25/21	5/15/21	21	100%
3.8	Temp-Sensor Block design	Yuhao Su	4/25/21	5/15/21	21	100%
4	**Project Presentation**					
4.1	Project Objectives	Nathan Raschkes	5/16/21	5/28/21	13	100%
4.2	Project Demonostrations	Gregory Stapley	5/16/21	5/28/21	13	100%
4.3	Quality of the Project Delivery	Yuhao Su	5/16/21	5/28/21	13	100%
4.4	Project Documentation	Nathan Raschkes	5/16/21	5/28/21	13	100%
4.5	Presentation Slide	Nathan Raschkes	5/16/21	5/28/21	13	100%
4.6	Project Performance	Yicheng Xiong	5/16/21	5/28/21	13	100%