EECE 4950 – Fall 2018
Capstone Senior Design Project
Weekly Progress Report

Instructions to the Design Group Leader: Please email a copy of this progress report to your project sponsor and to Dr. Bruce each Friday by 5 p.m. (excluding Oct 19 – Fall Break and November 25 – Thanksgiving Break).

Project Title: **Burn Resuscitation and Management for Early Responders (BME)**

Date: **9/28/18**

(a) For each member, provide (1) the number of hours spent working on the project in the past week, and (2) a brief (one paragraph) summary of your progress in the past week. (Each group member should provide his/her information. If none is provided, list "no report" for that person.)

Name: Eric Yeats (EECE)	Hours spent on project: 3
Summary of progress in past week: This week, I met with Dr. Alan Peters to discuss useful tools and resources for this project. He suggested that we conduct a literature review on Computer Vision –related tools such as OpenCV and Neural Network software. Additionally, he suggested that we try to find a pre-trained neural network that recognizes skin and try to adapt it to recognize burned skin. My tentative literature review delegation is on programming for Android platforms.	
Name: Nora Ward (BME)	Hours spent on project: 3
Summary of progress in past week: Nora Ward helped construct and deliver a presentation on our project in the BME senior design class. She was responsible for presenting meeting information. Her tentative literature review delegation is on Multi-View Stereopsis and Data Association tooling.	
Name: Hannah Kang (BME)	Hours spent on project: 3
Summary of progress in past week: Hannah Kang helped construct and deliver a presentation on our project in the BME senior design class. She was responsible for presenting information on the proposed app. Her tentative literature review delegation is on Burned Tissue Pattern Recognition.	
Name: Jacob Ayers (BME)	Hours spent on project: 3
Summary of progress in past week: Jacob Ayers helped construct and deliver a presentation on our project in the BME senior design class. He was responsible for presenting sustainability and future goals. His tentative literature review delegation is on Burn Severity Categorization and gathering more information on the working environment of the application.	
Name: Dominique Szymkiewicz (BME)	Hours spent on project: 3
Summary of progress in past week: Dominique Szymkiewicz helped construct and deliver a presentation on our project in the BME senior design class. She was responsible for presenting an introduction to the problem and our proposed solution. Her tentative literature review delegation is on Severe Burn Treatment.	
Name: Tommy Yates (BME)	Hours spent on project: 3
Summary of progress in past week: Tommy Yates has been working on a logo for the project. He also helped construct and deliver a presentation on our project in the BME senior design class. He was responsible for presenting sustainability and future goals. His tentative literature review delegation is on Neural Network Training.	
Name	Hours spent on project:
Summary of progress in past week:	

(b) Briefly describe your group's planned efforts over the next week. Please list any resources (hardware, software, documentation, tools, etc.) that your group may require in the near future, but which you do not yet have. If your group requires additional advice or guidance about an upcoming technical aspect of the project, please describe it.

A primary goal over the next few weeks is to conduct a literature review on the aspects of burn treatment and the software tooling that would be required for our app. The literature review would provide us with a better understanding of the problem space and how we can use software tools to address it. We can then converge on a design plan for our application in the weeks following.

I met with Dr. Alan Peters and received more direction on the steps we should take to implement our app. Due to the huge time and computational power requirements for training reliably-functioning neural networks, he suggested that we try to find a pre-trained neural network that recognizes skin. We can then use an image database provided by VUMC to further train the neural network to recognize burned skin areas. Dr. Alan Peters also suggested that I meet with my Artificial Intelligence Professor, Dr. Douglas Fisher, on receiving more direction on the neural network aspect of the project. I intend to organize a meeting with him after our Tuesday/Thursday 8 AM class next week.

In addition to the neural network tool, the application would require data association analysis in order to 'stitch' together the different views of the burn victim and come up with an accurate total affected body area percentage estimate. In image processing, this is called multi-view stereopsis. This, like the neural network research and burn treatment research, are vital to the functioning of our application and require special attention in the research phase.

A few of our teammates will also be working on burn severity categorization and treatment. The total affected body area percentage output of the smartphone application can be used as an input to the burn severity treatment determination process. This research can be done relatively independently from the smartphone application development research and both aspects of the project can be integrated together into the final app.

(c) If appropriate, attach any additional items such as documentation / test results / schematics / diagrams / etc. that may assist your group sponsor and Dr. Bruce in evaluating your progress and aiding in your design effort. Please provide a brief description of these items if needed.