

## **Vision Statement**

**Project Name:** Multispectral Image Capture System

**Team Name:** The Sixth Sensor

### **Team Members:**

- Jocelyn Ramirez
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### **Project Description & Outcome:**

We will develop a new FLIR product centering around a multi-wavelength image capture system. We will give users the ability to capture a stack of images at different wavelengths with a single shutter click. Four sensors will be used to capture images in the visible light, near-infrared (NIR), short-wavelength infrared (SWIR), and long-wavelength infrared (LWIR) spectrums. We will develop a database to store the images and create a GUI for users to review and manipulate the captured images. We aim to allow users a lot of control over the images within the GUI. Some features we hope to make available are changing the transparency of the images and allowing them to be moved on top of each other. Once this basic functionality is complete we will then move onto storing the images on a cloud system, this will allow authorized users to access images from different devices (laptops, PCs, etc.). Agile is the development process being used with the assistance of Trello to manage our workflow.

This product can have many applications, all centering around discovering what cannot be seen by the naked eye. For example, when one has a stroke the left and right side of their face differ in temperature, this asymmetrical behavior cannot be seen with the naked eye but

would be captured by a LWIR sensor. Thus, in this situation using our camera system would be advantageous for doctors looking to diagnose a patient as they would be able to clearly see the temperature difference. There are many more possible applications for our product and we hope to discover these different possibilities throughout the development process.

### **Project Milestones:**

- Complete Specifications with FLIR Mentors
- Finalize which sensors/hardware components will be used
- Learn the required software/hardware tools
- Design and build the image capture hardware
- Test and debug the hardware system
- Design and program the image capture software
- Create a UI for reviewing captured images
- Test and debug the UI
- Research cloud-based servers
- Develop secure methods of storing/retrieving images
- Design and implement cloud-based server
- Test and debug cloud-system

### **Project Tools:**

The major tools we will use to carry-out the project are four-different sensors: the SWIR and LWIR will be FLIR sensors; a four stream frame grabber to transmit the captured images, halogen lights to illuminate the image target, a mini PC, a image target sensor or marker, and development platforms to create a GUI for users to review and handle the captured images.