9/3/18 Kick off meeting:

Decisions-
Team lead will rotate
Current team lead Bailey
Team recorder Dustin
Team name - Spectralink
Team meetings after noon Tuesdays and Thursdays
Bailey will send out agenda for next meeting
Wiki master Matthew
Point of contact Bailey
Budgeter Matthew

To do for next team meeting- (from the handout)
Bailey- 2, 3, 6, 7,
Matthew- 3, 4, 5, 7, 9
Dustin- 1, 3, 7, (get the client information on this doc)

Phone numbers
Bailey- 208-449-7550
Matthew- 208-449-6465
Dustin- 208-946-7592

Emails
Bailey- lind3831
Matthew- matt9751
Dustin- pier2205

Client information-
Daniel A. Schneider
dallenschneider@gmail.com

9-15-18 meeting:

How many years has this project been going for?
More than 2 years with U of I seniors
Dr. Bolden was involved to some extent

Language that the project was programmed in: C#, (Unity at some point in time)
What has worked well on the project so far? Communication is key.
Dr. Sneider has been very good about meeting with the teams.
Talk to Dr. S about being called about the project
We will probably work more with the hardware as compared to other groups.
Scope for both semesters will be determined with Dr. S
Purchases will probably not be a problem
Expected budget: maybe $1,000
Git repository: Git account already out there
Use case diagrams etc, do as much as we can and then work with Dr. B and S to get more done.
Probably building off of work that has already been done.
One group did one thing then changed a lot of stuff around Christmas time. Improved as they went
Audio portion of the project? Dr. B does not know (wave at one point in time?) There are standards for what these things do.

9-19-18 Meeting:

Sightless Navigation and Perception (SNAP): Augmented Echolocation
Crappy sensor as of now. Limited field of vision, expensive, outputs are limited …
Using a new sensor without infrared, possibly an ultrasonic sensor.
Visual odometry system is well understood and used.
No radar, laser mapping. Lightar, visible sensors ae options.
Rectify, extract features, match features on each frame
Rectification is when you align horizontally all of the items in an image
Sift and surf are in opencv
Limit plane grabbing
Previous teams used openal
did no audio development

Need to buy a camera
Let him know to buy software

Questions for him:
Concrete goals for splitting the work up: shoot to have a working dms (svo) by december. 50% mark. If at expo we had a wearable piece of hardware that could use regular vision sensors in place of the existing thing that would be great! Add in other feature sets? Hardware currently is not developed to be a demonstration, it is just for playing around with.
Specific milestones? Yes
Generally speaking it is hard to get 180 degree visual odometry
Reuse code from previous projects? Starting fresh
How often should we meet? When we have a question. Meet at Alehouse?
Budget? $1000 but it is not stringent
Documentation? Good documentation is nice
Question? Cell phone call to him is OK anytime texting ok

Git repository to use? Plan on using git start own repository
Do you mind who we talk to about this? No
We will request space in IRIC to work with the hardware
Words of guidance for looking for hardware? Ton of visual odometry projects going around . Call people, Georgia Tech

First order of business is figuring out hardware

1. Getting it working
2. Plugging it into audio
3. Polishing it

9-23-18 Meeting:

Finishing up Gantt Chart
Possibly getting a cheap camera with limited software so that we develop the software ourselves: Tara Stereo Vision from e-con Systems.

10-2-18 Meeting:

Working on Portfolio and changes to Product Requirements document. Portfolio is coming along, we successfully put in a table of contents, cover page, and other pages. Next meeting we will work on the class diagrams and use case diagrams as well as the budget.

10-4-18 Meeting:

Working on Class Diagram, Use Case Diagram, and budget to complete the portfolio

10-9-18 Meeting: Preparing for Snapshot 1 and Snapshot 1

Making the poster board, touching up on the portfolio, product requirements doc, and other docs. The poster will be 9 sheets of paper that we print out with items from the portfolio, such as product learning, budget information and possibly the class diagrams. This information will be tacked to the poster.

Snapshot 1: we were late getting to Gauss Johnson so we had a poor spot in the very back of the room. We got a little traffic but not a ton.

10-11-18 Meeting:

Meeting with Mr. Sneider: did not show!!

10-16-18 Meeting:
Working on DVP

10-25-18 Meeting:
Completed Value Proposition

11-1-18 Meeting:
Came up with a plan for the rest of the semester: 12-3 meetings Tuesday and Thursday.

11-05-18 Meeting:
Picked up the hardware from client

11-06-18 Meeting:
Worked on WikiPage, hardware, and Portfolio

11-08-18 Meeting:
Worked on Nvidia board and Wiki page

11-13-18 Meeting:
Successfully downloaded SDK on TX2, went to the review meeting for CS students. The review was successful, other projects included a security system, and a waste treatment system.

11-15-18 Meeting:
Meeting with client via Skype, prepared powerpoint, looked at pros and cons of different software models. Decided on using the ZED SDK for the disparity map and openal for the audio portion. Also decided on a lag in the headphones to simulate left and right position in the system. Also, pitch and distortion for the other two axis. The left and right position would work by creating a lag in the side opposite the object. This would be similar to how when you snap fingers to the side of someones head, they know which side, even if their eyes are closed.

11-27-18 Meeting:
Worked on the poster for the snapshot day two. Presentation will consist of looked more into opencv and Zed SDK and how the two will work together. Able to get the zed SDK to compile a file that prints a disparity map to the screen. Prepared for meeting on Thursday with client.

11-29-18 Meeting:

Continued working on poster and completed it. Set up space in Gauss Johnson where our snapshot day two presentation will occur. Decided on a TV, our TX2 motherboard and Zed camera to show off the disparity map.

Snapshot 2 Meeting:
Successfully completed snapshot two. We brought a huge TV with the Zed camera hooked up to the TX2 and the TX2 hooked up to the tv. We put the disparity map up on the tv and explained to people how it worked. We printed 9 pieces of paper and pinned them to our poster and leaned the poster against the TV. The reporter for the Engineering department came and asked us questions and took pictures of us to put on the engineering department facebook page.

12-4-18 Meeting:
Today we worked on openal and learned what we could about its functions as well as what it can do. We decided that it has all of the functionality we need to continue moving forward with it. The openal library has a distortion as well as pitch and location setter. How it works is you have a source object and a listener object and the source object has properties such as a location. When you change this, it will hopefully change the output so that it sounds with a delay to the ear on the far side. The distortion is also performed on the source object as is the pitch change.

12-6-18 Meeting:
Today we worked on the portfolio and wiki page. We will also completed our logbooks. We went skating as a group before our meeting. We also met with Mr. Schneider at 3:30:
Finalized the decision to make audio delayed on one ear depending on location.
Edge detection? Yes with RGB video
Blotches are black in disparity map, could be a problem but might not be because they are black and not white (ie they are far away)
Need a mobile power supply
Need an hdmi or usb audio cord
New methods to do all the plane detection stuff
Mr. Schneider is worried we are using 2 expensive algorithms back to back
Instead we could use just one algorithm (SIFT) then pipe the points into the audio backend
Might need to brute force a solution but this is not a great idea since this is a prototype and the solution may not be portable to a smaller machine
Try to implement SIFT for two weeks before trying the brute force solution