Appendix A.   Components for Use with all SLAM Alternatives

Figure 12: Thumper Chassis

Figure 13: Pixhawk Autopilot

Figure 14: 3DR UBlox GPS + Compass Module

Appendix B.   GMapping Components

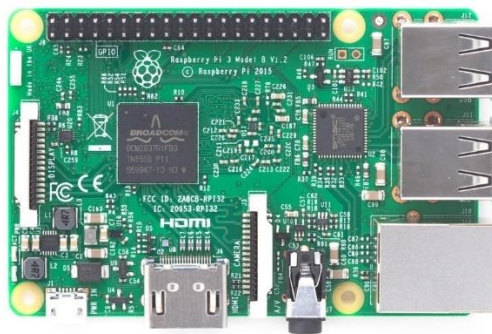**Figure 15: Arduino Uno**

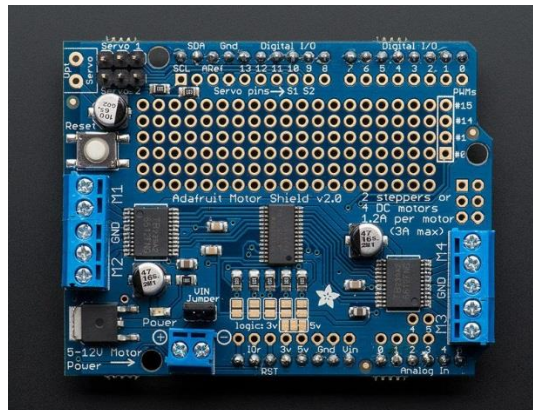**Figure 16: Raspberry Pi 3-Model B**

Figure 17: Adafruit Motor Shield

Figure 18: Laser Range Finder Sensor LRG/LIDAR
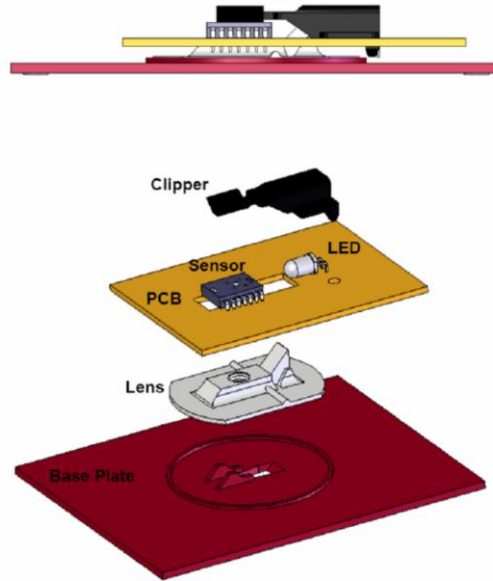

Figure 19: HMC5883L Compass

Figure 20: Mouse Sensor PAW3504

Appendix C. Gantt Chart

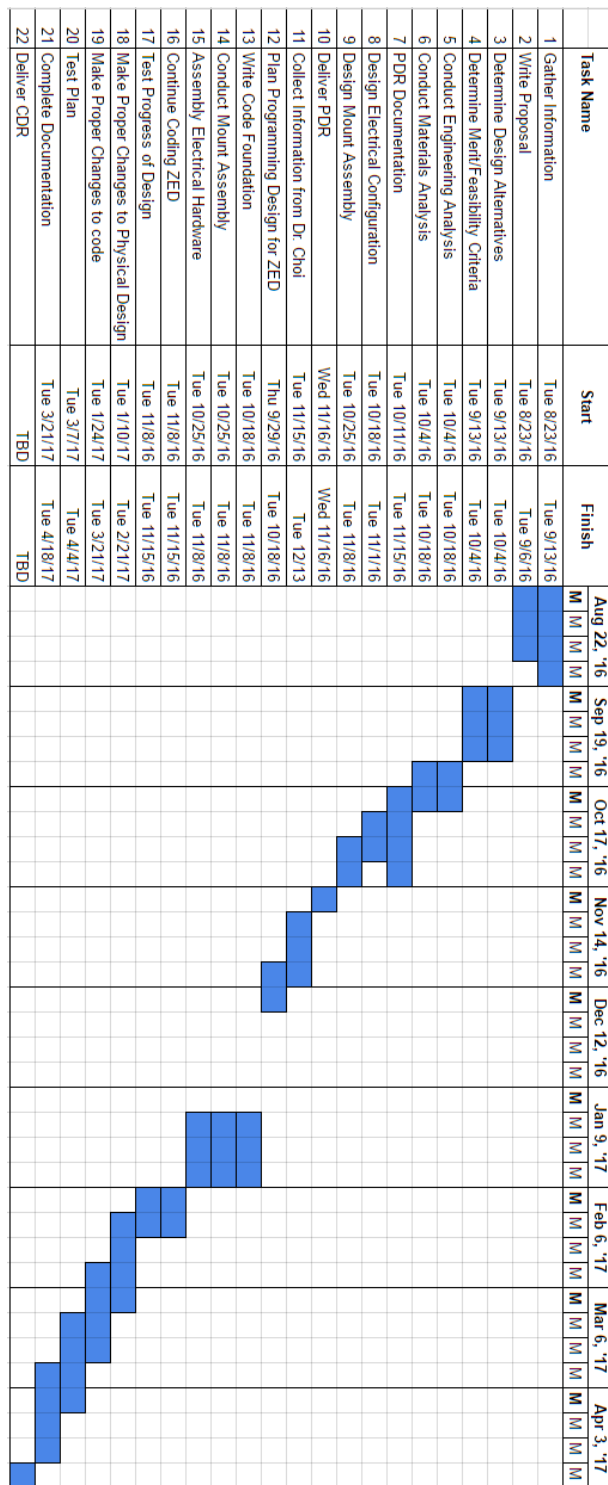| #	Task Name	Start	Finish
1	Gather Information	Tue 8/23/16	Tue 9/13/16
2	Write Proposal	Tue 8/23/16	Tue 9/6/16
3	Determine Design Alternatives	Tue 9/13/16	Tue 10/4/16
4	Determine Merit/Feasibility Criteria	Tue 9/13/16	Tue 10/4/16
5	Conduct Engineering Analysis	Tue 10/4/16	Tue 10/18/16
6	Conduct Materials Analysis	Tue 10/4/16	Tue 10/18/16
7	PDR Documentation	Tue 10/11/16	Tue 11/15/16
8	Design Electrical Configuration	Tue 10/18/16	Tue 11/1/16
9	Design Mount Assembly	Tue 10/25/16	Tue 11/8/16
10	Deliver PDR	Wed 11/16/16	Wed 11/16/16
11	Collect Information from Dr. Choi	Tue 11/15/16	Tue 12/13
12	Plan Programming Design for ZED	Thu 9/29/16	Tue 10/18/16
13	Write Code Foundation	Tue 10/18/16	Tue 11/8/16
14	Conduct Mount Assembly	Tue 10/25/16	Tue 11/8/16
15	Assembly Electrical Hardware	Tue 10/25/16	Tue 11/8/16
16	Continue Coding ZED	Tue 11/8/16	Tue 11/15/16
17	Test Progress of Design	Tue 11/8/16	Tue 11/15/16
18	Make Proper Changes to Physical Design	Tue 1/10/17	Tue 2/21/17
19	Make Proper Changes to code	Tue 1/24/17	Tue 3/21/17
20	Test Plan	Tue 3/7/17	Tue 4/4/17
21	Complete Documentation	Tue 3/21/17	Tue 4/18/17
22	Deliver CDR	TBD	TBD

Figure 21: Gantt Chart for Project Schedule

Appendix D.   Team Resumes

Matthew R. Deremer
157 Stonewall Place, Macon, GA 31204
mattderm95@gmail.com
(706) 983-1983

WORK EXPERIENCE
Intern: Georgia Tech Research Institute, Warner Robins Field Office – Oct 2014-Dec 2015, May 2016-current
- Gained AutoCAD experience with real-world projects
- Helped develop a database in Microsoft Access using the Access IDE

Intern: 4C Talent – Summer 2014
- 5-week internship program developing a database for a startup company

Head Lifeguard: Jefferson Parks and Recreation Department – 2011-2014
- Responsible for safety of patrons and pool facilities as well as managing other lifeguards

EDUCATION
Mercer University, Macon, GA – Aug 2013-Present
- Pursuing Bachelor's degree in Electrical Engineering, Minor in Computer Science, Master's degree in Computer Engineering
- Undergraduate academic GPA: 3.835 out of 4.0
- Current undergraduate classes: Communication systems I, Engineering Senior Design Project, Programming II (Java), Theory of Data Communications
- Graduate academic GPA: 4.0 out of 4.0
- Current graduate classes: Introduction to Computer Architecture
- Expected graduation date: May, 2018

HONORS & AWARDS
Dean's Council – Fall 2015
- One of four students from the engineering school selected to participate in a council that provided feedback to Mercer's administration on how to improve academic opportunities for students

President's List, Mercer University – Fall 2015

Dean's List, Mercer University – Fall 2013, Spring 2014, Fall 2014, Spring 2015, Spring 2016

Boy Scouts of America Eagle Scout – 2011
- Highest honor awarded in Scouting – Based on leadership and requirements (exceeded requirements)

ACTIVITIES & AFFILIATIONS
Mercer University:

Tau Beta Pi – Sep 2015-Present
- Engineering Honor Society
- Offered to top fifth of Junior class

Sigma Xi Honors Research Society – 2014-Present

Phi Eta Sigma Honors Society – 2014-Present

Honors Engineering Program – Aug 2013-Present

Alpha Tau Omega Fraternity – Sep 2013-Present
- Chaplain (2016), responsible for interfraternity relations and planning chapter retreats
- Secretary (2015), responsible for attendance and chapter meeting minutes

Luke J. Pace

Luke.Joseph.Pace@live.mercer.edu

Current Address
1400 Coleman Avenue
MU Box 72962
Macon, GA 31207-0002
(864) 723-5455

Permanent Address
208 Creekwood Lane
West Union, SC 29696
(864) 638-8424

Objective

Seeking to design a SLAM system using the ZED camera system and Jetson TX1.

Education

Bachelor of Science in Computer Engineering, Mercer University, Macon, Georgia
Currently a Senior   GPA: 3.556
Masters of Science in Computer Engineering, Mercer University, Macon, Georgia
Currently Enrolled   GPA: In progress

Work Experience

Science Trax, Macon, Georgia   January 2015-Present
Support Analyst and Junior Developer
· Design test in our database for electronic data capture using Javascript and HTML.
· Send emails and participate in conference calls with coworkers and clients to communicate progress of test development.
· Assist in the training of new employees.
· Write detailed proposals of projects to present to clients.
· Collaborate with coworkers to develop the most efficient design of test.

Mercer University, University Center, Macon, Georgia   Summer 2014-Present
Bear Force Leader
· Work with a team of supervisors to manage the University Center, Mercer Basketball games, and Mercer Football games.
· Supervise events within the University Center ensuring all necessary accommodations are met.
· Take part in weekly meetings to discuss scheduling, goals, and address necessary situations.
· Develop and implement plans to motivate workers so they reach their maximum potential and consistently generate a customer service environment.
· Constantly engage workers to ensure goals set by supervisors are achieved.
· Assist in the interviewing, hiring, and training of new employees.

Advanced Electronics, Seneca, South Carolina   Summer 2013 and 2014
Computer Technician
· Communicated with customers to pinpoint their problem and provide a diagnostic including approximate time to resolve problem and cost of repair.
· Individually repaired computers and printers which had either software problems or hardware problems.

· Solely managed retail store front by answering customer questions over the phone and in person, operating the cash register, and walking customers through any issues they had with their devices.
· Created spreadsheets for store inventory.
· Assisted in the installation of surveillance systems for professional and residential use.

Computer Skills

C++, Java, Javascript, Angularjs, CSS, HTML, Microsoft Office

Honors and Professional Organizations

National Society of Leadership & Success

Dean's List 2013, 2014

Phi Eta Sigma National Honor Society

Christopher Woiwode
1248 Shamrock Street, 31201, Macon, GA
(Cell) 912-856-7676
cwoiwode@gmail.com

Education: **Mercer University School of Engineering, Macon GA, August 2013 - present**
Master of Science Degree - Mechanical Engineering
Bachelor of Science Degree - Mechanical Engineering

Completed Coursework
- Manufacturing practices
- Visualization, Graphics and Solid Modeling
- Experimental Methods
- Machine Design
- Electrical Fundamentals 1 & 2

Other Skills
- Operating Systems:
  - IOS
  - Windows
  - Linux
- PTCreo
- AutoCAD
- MatLab
- Microsoft Office
- C++ Programming

Projects:
- Manufacturing Practices Fixture
  - Worked in a team of three to build a fixture designed to produce a bottle opener using an end mill
  - Presented the working fixture to the instructor and colleagues
- Tug-of-War K'nex Car
  - Worked in a team of three to build and compete with a car built out of K'nex pieces in a tug-of-war competition
  - Prepared and presented a proposal, PDR and CDR to the instructor and colleagues
- Freshman Design Toothpick Bridge
  - Worked as a team to build a model bridge to withstand tension and compression loads
  - Prepared and presented a proposal, PDR and CDR to the instructor and colleagues

Experience:
- Real Estate Broker   July 2016 - Present
  - Qualifying broker
  - Represent client in real estate transactions
  - Experience working with clients to achieve a specific goal in a set amount of time
- Real Estate Salesperson   June 2013 - Present
  - Represented a broker who represented a client
  - Experience working with clients to achieve a specific goal in a set amount of time

Involvement:
- Order of Omega, Honor Fraternity   August 2015 - Present
- Interfraternity Council   January 2015 -
  Present
- Sigma Alpha Pi, Leadership Fraternity   August 2014 - Present
- Sigma Nu Fraternity   September 2013 - Present