IGVC Project Plan

General Information

1. Project Name: IGVC - Intelligent Ground Vehicle Competition
2. Team members:
   - Viet Dung Nguyen (CSE) (dnguyen2016@my.fit.edu)
   - Jinwen Zhang (jzhang2015@my.fit.edu)
   - John Light (jlight2016@my.fit.edu)
   - Sijin Yang (yangs2017@my.fit.edu)
   - Peter Tarsoly (ptarsoly2016@my.fit.edu)
3. Faculty Sponsor: Dr. Marius Silaghi
4. Client: Dr. Ken Gibbs
5. Meetings with the Client:

Goal and Motivation

The goal of the project is to build an unmanned autonomous robot to compete in IGVC in Michigan. The objective of the competition is to have the robot complete an outdoor obstacle course under a prescribe time within the speed limit of 1-5 mph while remaining on the lane and avoiding obstacles.

Approach:

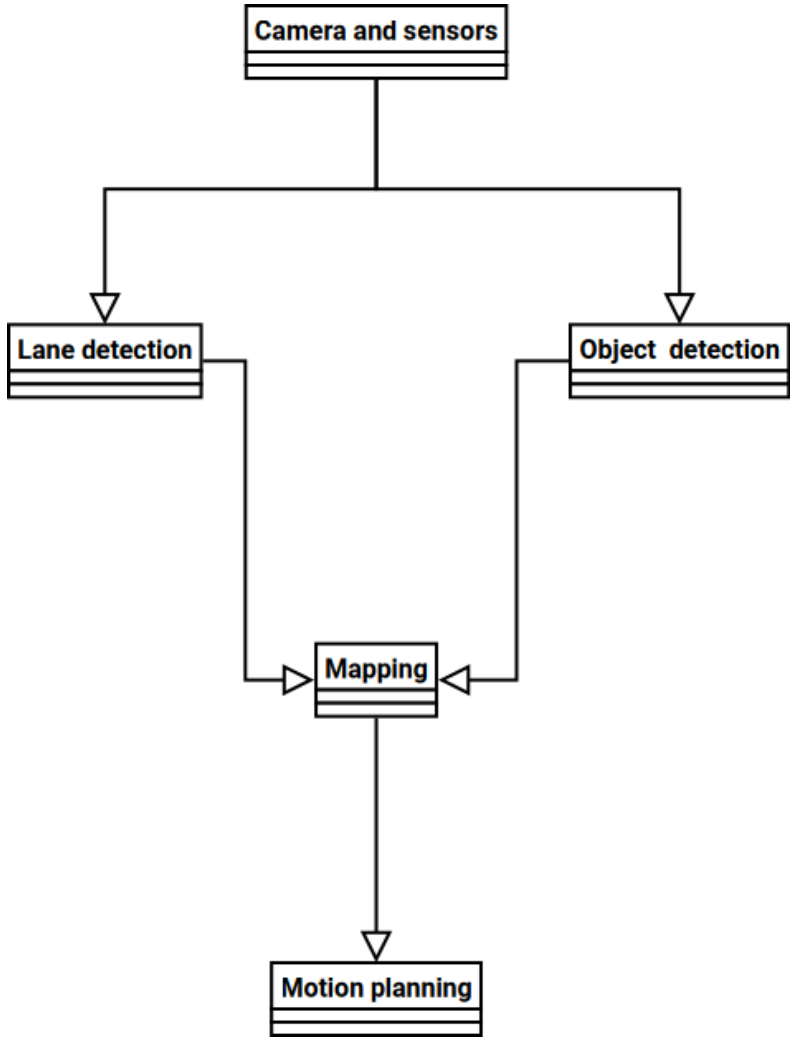
The key features of the software components are:

- Lane detection
- Obstacle detection and avoidance
- Mapping
- Motion planning

Progress Summary:

Task	%	To do
Examine options for motion planning	50	Decide the algorithm
Implement and test lane detection	80	Improve the accuracy
Implement and test mapping	80	Require integration testing

Design


Camera and sensors
Lane detection
Object detection
Mapping
Motion planning

Technical Challenges:

- Team members have no experience with creating 3D environment in order to creat software simulation
- We need to decide on motion planning algorithm
- We need to find a way to detect obstacle

Milestone 4:

- Creating an emulation environment to test the software
- Test the software using the emulation

Milestone 5:

- Implement and test obstacle detection
- Implement and test motion planning
- Create poster for Senior design showcase

Milestone 6:

- Test/demo of the entire system
- Evaluation results
- Create user manual
- Create demo video

Questions?