Milestone Four

FLORIDA TECH IGVC

Milestone 4 Matrix

#	Task	% Complete	Brent	Adam	Chris	Will
1	Line Detection	85%	0%	0%	100%	0%
2	Software Integration	67%	15%	25%	15%	45%
3	Motion Planning	85%	70%	30%	0%	0%
4	INS Troubleshooting	20%	0%	0%	50%	50%
5	AMQP Setup	100%	0%	0%	0%	100%
6	Motor Control Comm.	100%	0%	0%	0%	100%
7	Startup, Control, Logging	75%	10%	60%	0%	30%
8	GPS (for Demo)	0%	0%	0%	0%	100%

Navigation & GUI

- Motion planning algorithm complete
- D* implemented instead of LPA*
- Next Steps:
  - Update GUI to display maps created using lines and obstacles data instead of generate said maps
  - Figure out impact of limitations on vehicle
  - Live testing

Line Detection

- Basic lines on grass implemented for well it conditions
- Angle established for best behavior of the ZED
- Time spent on fixing GPS
- Next Steps:
  - Talk with Dr. Smith about improving algorithms
  - Test camera with polarized film
  - Try different combinations of algorithms

Communication

- Tested communication between live components especially motor control
- Updated Java communication components
- Next Steps:
  - Additional unit needed for Lidar
  - Write interface with ROS

Robot & Motor Control

- Running with live motor control and commands
- Motor control using interrupt based messaging complete
- Next Steps
  - Testing error margins for commands, turns, etc.
  - Establishing maximum angular velocity
  - Multi-threading motor control

Position

- GPS was bricked during demo
- New INS arriving with semi-unknown specs
- ROS
  - Robot_localization is a well known library that takes multiple position inputs then uses an extended or unscented Kalman filter to achieve position
  - INS may offer position accuracy necessary
- Next Steps
  - Get ROS running to write communication interface
  - Figure out whether Robot_localization is the right way to go

Milestone 5 Matrix

#	Task	Brent Allard	Adam Hill	Chris Kocsis	Will Nyff.
1	Lidar & Lines	0%	25%	75%	0%
2	Software Integration	25%	25%	25%	25%
3	Software Testing	25%	25%	25%	25%
4	Hardware Integration	25%	25%	25%	25%
5	Motion Planning	100%	0%	0%	0%
6	GUI	100%	0%	0%	0%
7	Startup, Control, Logging	10%	60%	0%	30%
8	Comm. Maintenance	10%	10%	10%	70%
9	IOP	0%	70%	0%	30%
10	Create Poster	25%	25%	25%	25%