DGC 120 Planning team - Week 1 HW1 Charts

TA:

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Stereovision subteam:

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Email all: team-software @cds.caltech.edu

* = Non-DGC 120 support, minimum time commitment 10 hrs./wk., attend project meetings (Mondays, 8pm, 139 Moore), planning team meetings (Wednesdays, 8pm, 139 Moore), subset of field tests

DGC 120 Planning team GOTChA chart

<u>G</u>oals

- ⊠Effectively, quickly, safely and autonomously command the vehicle through the QID course
- ⊠Effectively, quickly, safely and autonomously command the vehicle across the entire DGC course
- ⊠Global subteam: Keep vehicle on course and navigate route efficiently

Objectives

- ⊠Average X mph autonomously over ten hours over { A, B, C} type of terrain (A,B,C TBD)
- ⊠Similar objectives for different speeds, driving conditions (enumerated)
- ☑Ability to accurately detect and command around obstacles under various driving conditions
- ⊠ Global: Preprocess waypoint data from RDDF in less than 2 hours (before race)
- ⊠ Global: Never stray off course
- Global: Spend minimal time traversing a route

Technical Challenges

- ⊠Not crashing
- ⊠Avoiding other competitors
- ⊠Properly navigating water
- ⊠Terrain classification and proper response
- Managing "dead end" scenarios
- Effective response to fault information from emb. sys.
- ⊠Global: Accurate registration of static map data in UTM coordinates
- ⊠Robust software capability of running indefinitely without segfaults, runtime errors, memory leaks

<u>Approach</u>

- ⊠Vision and LADAR based sensing
- ⊠Arbiter-based driving framework to handle multiple sensory inputs
- ⊠Integration of software with portable MTAbased embedded system design
- ⊠Use of a priori known information (static maps) about course for navigation

DGC 120 Planning team status chart



DGC 120 Planning team

Planning Team Timeline

