AuE 893 Autonomous Driving Technology

Project 2: Autonomous Lane Keeping with Road Sign Recognition

Clemson University

Getting Started

- 11 groups: each group consists of 4 students (except one group with 3 students).
- Grouping information is available in Canvas.

Project Schedule

- **Mar 28 – Project 1 announcement & vehicle controls**
- **Apr 2 – Camera calibration & lane tracking controls**
- **Apr 4 – Knowledge review & Q&A**
- **Apr 9 - Knowledge review & Q&A (TBD)**
- **Apr 11 – Project 1 Test**

- **Apr 16 – Project 2 announcement & road sign recognition**
- **Apr 18 – Connected vehicles, Network Communications & Controls**
- **Apr 23 – Knowledge review & Q&A**
- **Apr 25 – Project 2 Test**

- **Apr 30, May 2 - Presentations**
- **May 4 – Report due**

Project 2: Lane Tracking with Road Sign Recognition

- Tasks

1. **Lane keeping**: Track the lane clockwise using a first camera and a first computer.
2. **Recognize road signs**: Recognize a stop sign and a school sign using a second camera and a second computer.
3. **Communications**: Send the road sign information from the second computer to the first computer through Wi-Fi communication.
4. **Vehicle Controls**: Stop at the stop sign for 2 seconds and then run at a high speed. Reduce the speed at the school sign.

Project 2: Lane Tracking with Road Sign Recognition

Project 2: Lane Tracking with Road Sign Recognition

- Tests (April 25)

1. Each group has to upload your codes to Canvas before test class
2. Each group has to track the lane for three rounds (clockwise)
3. Each student has to upload a word/pdf file to Canvas to assess your other teammates (score: 1-10) based on contributions after test class
4. Each student has to write a report according to a given template in Canvas to describe
   - Detailed designs (road sign recognition, communications, controls)
   - Results (road sign recognition, communications, controls)
   - Submit the "Report 2" **in the end of the semester**

Project 2: Lane Tracking with Road Sign Recognition

- Tests (April 25)

  1. Each group has to upload your codes to Canvas before test class
  2. Start from group 11 to group 1
  3. Track the lane for three rounds (clockwise)
  4. Record data for:
     - Times of running out of the lane
     - Time cost to finish the three rounds
     - Stop before the stop sign for 2 seconds
     - Reduce the speed at the school sign

Project 2: Lane Tracking with Road Sign Recognition

- Grading

  - 50% - Test results

  - 40% - Submitted codes

  - 10% - Your teammates' assessment

  - You have one time to retry without penalty. For each additional try, you will lose 10%.

Project 2: Lane Tracking with Road Sign Recognition

- After Tests

1. Each student has to upload a word/pdf file to Canvas to assess your other teammates (score: 1-10) based on contributions after test class
2. Each student has to write a report according to a given template in Canvas to describe
   - Detailed designs (road sign recognition, communications, controls)
   - Results (road sign recognition, communications, controls)
   - Submit the "Report 2" **in the end of the semester**