Course Learning Objectives:

- Robotic arm assembly and use
- Stereo vision and image processing
- Hands on experience with hardware and software
- Teamwork across embedded system and robotic software domains
- Project management and progress reporting
- Robotic challenge experience
Class Schedule
- LOCATION: CSE 3219
- TIME: Tu/Th 2:00 – 3:20

Professors:
- Greg Hoover – ghoover@eng.ucsd.edu
- Chris Barngrover – cbarngrover@eng.ucsd.edu
- Office Hours Upon Request
  - LOCATION: 2114
  - TIME: Tu/Th 3:30 – 4:30

Teaching Assistants:
- Nishant Bhaskar – nibhaska@ucsd.edu
- Sakthi Sivaraman – srsivara@eng.ucsd.edu
- Office Hours: TBD
CSE 291: Robotic Project

Assignments
Grades
Syllabus

Q&A, Discussion, etc
Lecture Slides
Syllabus

ted.ucsd.edu
piazza.com/ucsd/winter2016/cse291b00
Course Roadmap:
- Week 1: Team formation and Odroid board setup
- Week 2: ROS nodes, WIFI setup, rviz
- Week 3: Robotic arm assembly, feedback control, ROS/rviz
- Week 4: Stereovision setup, calibration, depth map
- Week 5: iRobot setup and mounting components
- Week 6-10: Project

Weekly Project Reports
ROBOTIC CHALLENGE

- Design an autonomous system capable of collecting balls of a specific color and depositing them in a bin

- Challenge detail:
  - The field (space) may be chosen at random
  - Balls of varying colors and sizes will be in play
  - Teams compete simultaneously – multiple robots will be on the field at the same time

- This is not Battle Bots!
  *(unless you bring all of your own equipment)*
GRADING

- 5 Team assignments: 100pt each
- Project: 500pt
- Progress presentations: 20pt / week
- Project wiki updates: 10pt / week
- Bonus for winning team: TBD
- Extra Credit: Available upon request for specific assignments
TEAM FORMAT

- Students of varied backgrounds

- Teams will need a mix of experience / strengths:
  - Embedded systems
  - ROS
  - Mechanical – assembly / fabrication
  - Machine learning
  - Computer vision