Project 3 Presentation

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Hardware Design

- Chassis
  - Four-wheeled drive with low center of gravity.
  - Claw unit with a small motor mounted in the front.

- Motors
  - Two motors drive powers.
  - One small motor drives graper.
  - One servo turn CMUCam.
Hardware Design

Sensors

- One CMUCam
- Two encoders detect two rear wheels.
- Two reflectivity sensors used to line up.
Software Design

Hybrid/Deliberative

- Planning: get all cubes to closest goal.
- code could be described as behaviors being different functions of the code.

For example: goStraight()
             turnWithEncoders()
Software Design

- **Navigation:**
  - Use CMUCam to turn when there was a cube within 2' of robot.
  - Otherwise, use encoders to turn.
  - Use encoders for distance travelled measurements.
  - Use Reflectivity sensors to align with black tape in a goal location.
Performance

- Moderately Successful:
  - 59 Points - Got 3 goals and one false positive goal.
  - With sensor type and precision limitations, software did a reasonably good job of navigation.
Summary

- Positive Aspects of Software
  - Sensor Fusion of CMUCam and Encoders to achieve faster turning.
  - Location and Direction correction by Centering itself inside of the Goals.
Summary

- Negative Aspects of Software:
  - Fail to use a cube to be landmark.
  - Can’t recover when lost.
  - Memory and Speed constraints more sophisticated path planning.
  - A bunch-o-bugs.