Project3   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 acheive 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 .