

ECGR 4161

6/5/12

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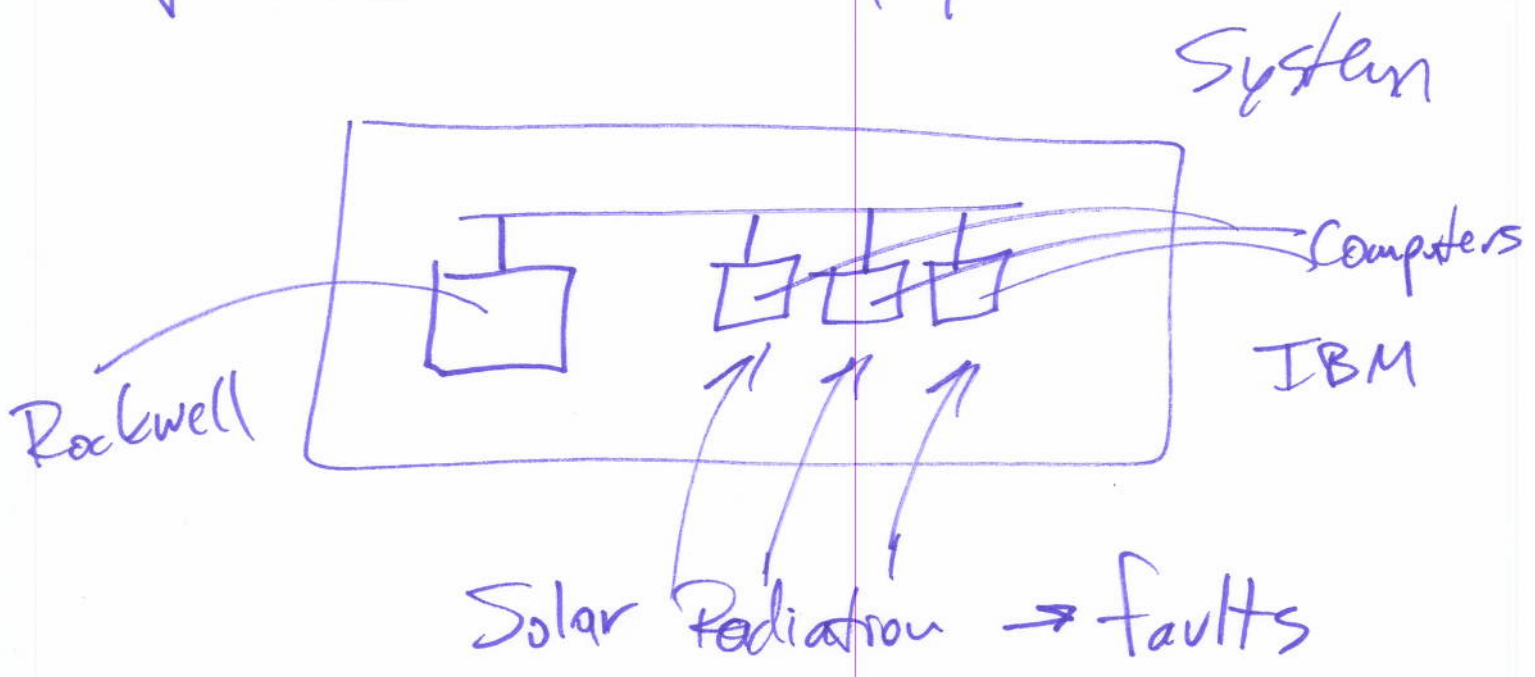
The Robot shall:

- A Have n degrees of freedom
- B Have m sensors
- C Have 2 legs
- D Have 2 hands/arms
- E Have voice output
- F Have voice recognition
- G Have battery power to run 1 hour
- H Have stability control to allow it to walk and stand
- I Be "life size" (i.e. 2.0 m)

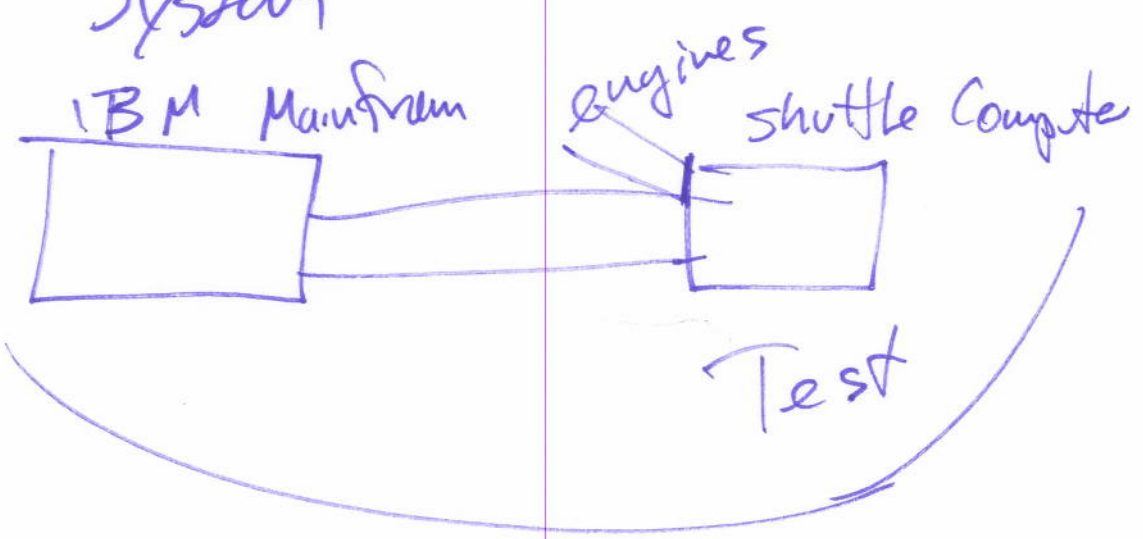
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Space Shuttle - early years



Test System

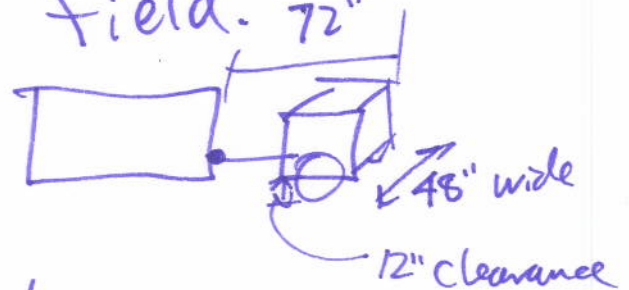


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(2)

My vehicle will ~~not~~ travel rough terrain, pull a trailer with instruments, in a fashion similar to "cutting a lawn". There are occasionally 4" & larger dia. trees in the field. 72"



Your task:

Design/Identify Parts:

- * Vehicle
- * Power/Powertrain
- * Control System ←
- * Training/Personnel
- * Location Services

Assignment (Quiz)

Further reduce control system

Requirements:

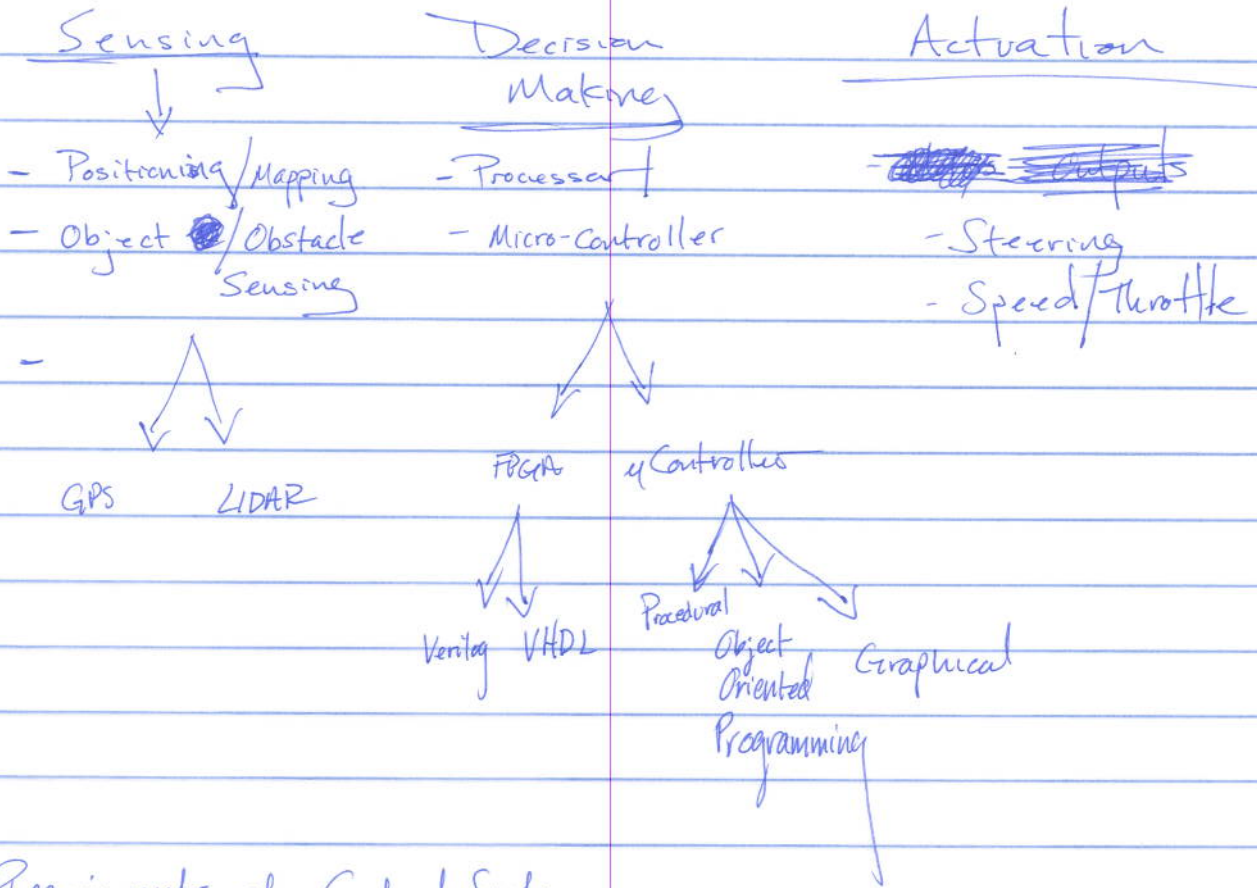
- 1) Vehicle: The vehicle shall be able to run in sun/rain/snow.
- 2) Vehicle: The vehicle shall operate in the temperature range of -10°C to 60°C
- 3) Vehicle: The vehicle shall be no larger than 1.25m wide by 2.0m long by 1.5m high
- 4) Powertrain: The vehicle shall operate for 8 hours (continuously).
- 5) Powertrain: The vehicle can be powered by gasoline or electricity (battery).
- 6) Control System: The system shall be able to control its location with an accuracy of 2cm.

Your assignment:

Write 5^{other} good requirements for the control system

Control System

At 😊 (this part)



Requirements of Control System

- Control: 1. System shall be capable of averding all objects/obstacles along path of travel.
- Control: 2. System shall be reprogrammable
- Control: 3. System shall ~~utilize~~ utilize prioritized decision making algorithms
- Control: 4. System shall be capable of logging location of all unexplatd ordanance.
- Control: 5. System shall know when task is complete.

Requirements:

- ① Control System: The system shall be able to detect obstacles within the path of the vehicle.
- ② Control System: The system shall have a manual drive override via a remote user interface.
- ③ Control System: The system shall record previously locations for mapping.
- ④ Control System: The system shall avoid obstacles larger than 0.1 meter by 2 cm.
- ⑤ Control System: The system shall require -165 db.

