MP3: Improve Your MP2 Software Design

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By: Rohan Tabish

1. What did your team regarded as safety-critical, mission-critical, and performance-optimization requirements respectively?

2. How did your team make sure that tasks and resources are prioritized according to the criticality level of the requirements they support?

3. Did they ensure that dependencies are well-formed (less critical stuff should not interfere with more critical stuff)? How?

4. Did your team enforce isolation between tasks supporting different requirements? How?

5. How did your team do in the lab?

6. What were the key lessons your team learned from the implementation?

Recap - MP2 - Ancient Mine Exploration

Farmer planting tree

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The maze is labeled as archeological site.
So there are requirements that robot must follow.

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- Requirement # 4: Finish as quickly as possible

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  - Aladdin Lamp must be disarmed
  - Mimic weapon activation by turning on the red light for 2 seconds when it sees the Lamp - Caution you can use weapon only once
  - Failure to properly detect the lamp is violation of mission critical requirements
  - Scientist program must finish 25 percent - Code is provided with the MP

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Subtasks inside Tasks and the Super Natural Lamp

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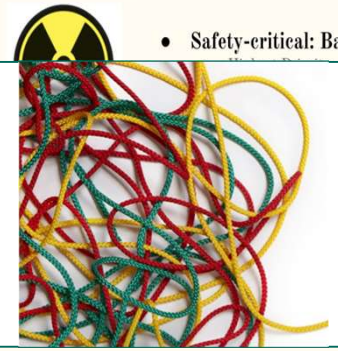

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Wait: This is complicated

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Break into multiple components test them individually and then merge them

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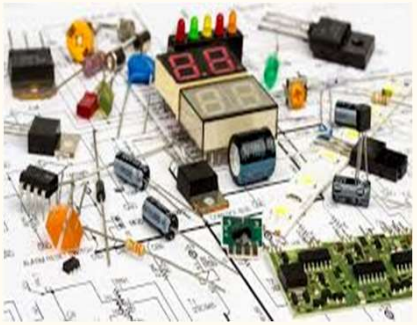

Understand how each sensor works by writing test codes before trying to control them

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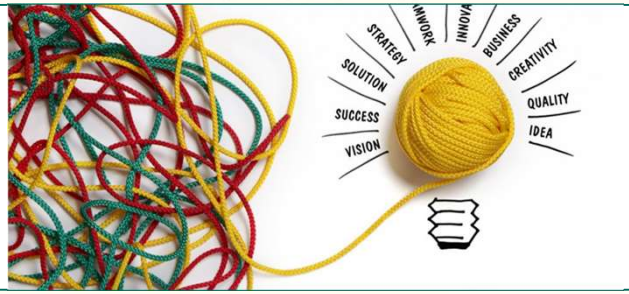

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This makes sense.
I know how to do it.

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Grading - Read More Details in the MP Description

Task	**Points**
Robot Safety	F = 1, 0.67, 0.33, or 0
(a) Mapped contour reasonably represents the maze (b) maintain robot-wall distance	1.5
Identified all objects in the maze	2
Disarmed lamp	1
Execution of Scientists Payload	1
Travel through 7 walls within 120 seconds	1.5
Total mission time (including outsize maze processing) within 500s	1.5
Design Report	1.5