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Capstone Project Specification and Plan (FIRST DRAFT)

Robotic Air Hockey System  
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# Complete System Diagram and Description

o block diagram of the complete system

o Description of each block

o Identification of off-the-shelf components and ‘own design’ components.

o Breakdown the ‘own design’ components into a number of modules (one module per group member)

o Risks and risk management plan

# System Level Design Specification

“A design specification is a detailed document providing information about the characteristics of a project to set criteria the developers will need to meet. Its use is called for where a structure or product has to be specially made to meet a unique need.” ~ Wikipedia

When you develop a system, and measure its performance, you need to compare it with some criteria to evaluate the performance. These criteria must be met when you perform validation test at the end of the project (in semester 8)

The specification should be a SMART (Specific, Measurable, Achievable, Realistic, Timely) specifications with MuSCoW (Must, Should, Could, Won’t), risk and effort ratings (high, medium, or low) for each functional/work block

# Design Task 1:

//one task for one group member//

o Design specification and methodology/process

o Assessment 1 and Assessment 2

o Requirement of new knowledge and skill, if any

o Requirement of tools and resources

o Risks and risk management plan

# Design Task 2:

o Design specification and methodology/process

o Assessment 1 and Assessment 2

o Requirement of new knowledge and skill, if any

o Requirement of tools and resources

o Risks and risk management plan

# Design Task 3:

o Design specification and methodology/process

o Assessment 1 and Assessment 2

o Requirement of new knowledge and skill, if any

o Requirement of tools and resources

o Risks and risk management plan

# Project Schedule

(Gantt chart or equivalent)

Modularity is expected in your system development work. It is expected that each group member will work on individual component separately as long as it makes sense, and tests each module separately to ensure that the module works properly. At one point two or more components/modules are to be integrated. This process will continue until final complete integrated system is developed. The schedule should give a timeline of this process.

Group should identify the most complex, challenging and/or uncertain part first and start working on it as early as possible. Research, prototype & experiment, simulate, acquire knowledge/skill, and also ask for help, as needed, in order to reduce risk.

Some procurement and out-sourcing task may cause delay. You should send orders out as early as possible. Also, plan your work in such a way that you don’t need to sit idle until ordered resources are available.

In the first week of Part 2 (semester 8) you will revise this document based on your project status and risk at that time, and use it for the remaining part of the project.

# References

[1] "Air Hockey Robot (a 3D printer hack)", *jjrobots*, 2018. [Online]. Available: https://www.jjrobots.com/air-hockey-robot-a-3d-printer-hack/. [Accessed: 08- Feb- 2018].