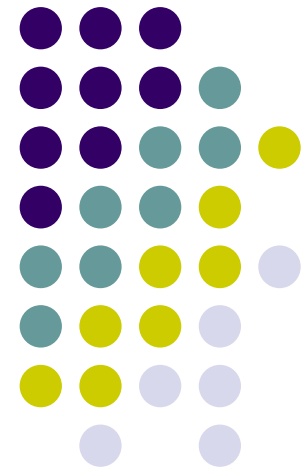


EE405 Electronic Design Lab – RoboCam

Lab 6. System Enhancement

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I. Purpose



- The purpose of this lab is to
 - perform **System Enhancement** on RoboCam.
 - You define your own small project of system enhancement, and experience progress of the project.

II. Progress Summary of System Enhancement Project



System enhancement is typically progressed step by step as follows.

- Step 1. Define your own small project on system enhancement of RoboCam.
- Step 2. Write technical specification of your system enhancement.
- Step 3. Design your own hardware and software.
- Step 4. Submit your Proposal of System Enhancement, including topic, technical specification, and design.
- Step 5. Implement and test your own hardware and software.
- Step 6. Documentation.
- Step 7. Perform Demonstration to TA.
- Step 8. Presentation to Students.

III. Steps of System Enhancement Project



Step 1. Define your own small project on system enhancement of RoboCam.

- Select topic:
 - Propose your own enhancement on RoboCam containing purpose
 - Browse the original specification described in Intro Section.
 - Suggest what can be improved.
- Write:
 - Topic: your system enhancement
 - Paragraph: Explain your system enhancement.

Steps of System Enhancement Project (II)



Step 2. Write technical specification of your system enhancement.

- In technical specification, explain capability of your system enhancement with specific numbers.

Steps of System Enhancement Project (III)



Step 3. Design your own hardware and software

- Note. Clear design clearly helps system implementation and test easy.
- Divide functionality into hardware and software.
- ***Hardware:***
 - Lab equipment used so far can be used in this Lab also.
 - You can use components provided in this Lab and additional components stocked in EE.
 - Ask Technical staff whether required component is stocked.
 - Additional parts may be purchased by yourself (at your own expense for quicker delivery)
 - Minimize additional components to purchase.
- ***Software:***
 - Be sure that implementation does not require much time.

Steps of System Enhancement Project (IV)



Step 4. Prepare your Proposal for Enhancement

- Summarize Steps 1 to 3 to write your own proposal [as your pre-report].
- ***Contents of Proposal***
 - Topic
 - One sentence, Bold.
 - Project Members: Name, Student id, Phone, Email.
 - 1. Problem Statement
 - One paragraph describing objective of your system enhancement.
 - 2. Enhanced Technical Specification
 - Improved/enhanced specification on RoboCam.
 - 3. Design (Initial)
 - Block diagram showing hardware/software components.
 - Required hardware & additional components.
 - Required Software.

Steps of System Enhancement Project (V)



Step 5. Implement your own hardware and software

- ***Hardware***
 - Connect or solder your additional components.
 - Test functionality.
- ***Software***
 - Edit, compile, and debug.
 - Test with various conditions
- In some cases, you may go back to Step 3 to Redesign hardware or software.

Steps of System Enhancement Project (VI)



Step 6. Documentation

- Can be done parallel with Step 5.

Step 7. Demonstration

- Demonstrate the functionality of your enhancement To TA.

No Final Report is required.

Steps of System Enhancement Project (VII)



Step 8. Presentation

- To students, TA, professor in this course.
- Use powerpoint. Present in English.

Contents of Presentation [PPT]



- Cover page:
 - Topic
 - Project Members: Name, Student id, Phone, Email.
- 1. Topic
 - One sentence, Bold.
- 2. Problem Statement
 - One paragraph describing objective of your system enhancement.
- 3. Enhanced Technical Specification
 - Improved/enhanced specification on RoboCam.
- 4. Design (Final)
 - Block diagram showing hardware/software components.
 - Required hardware & additional components.
 - Required Software.
- 5. Technical Explanation (if required)
- 6. Implementation Result
- 7. Conclusion and further work

Note



- Suggestions for improvement on RoboCam are welcome. Each student should email suggestion to professor.
- ***Patience is bitter, but the fruit is sweet.***