Project Guidelines: Info & Proposal

Orkun Zorba, Ph.D.

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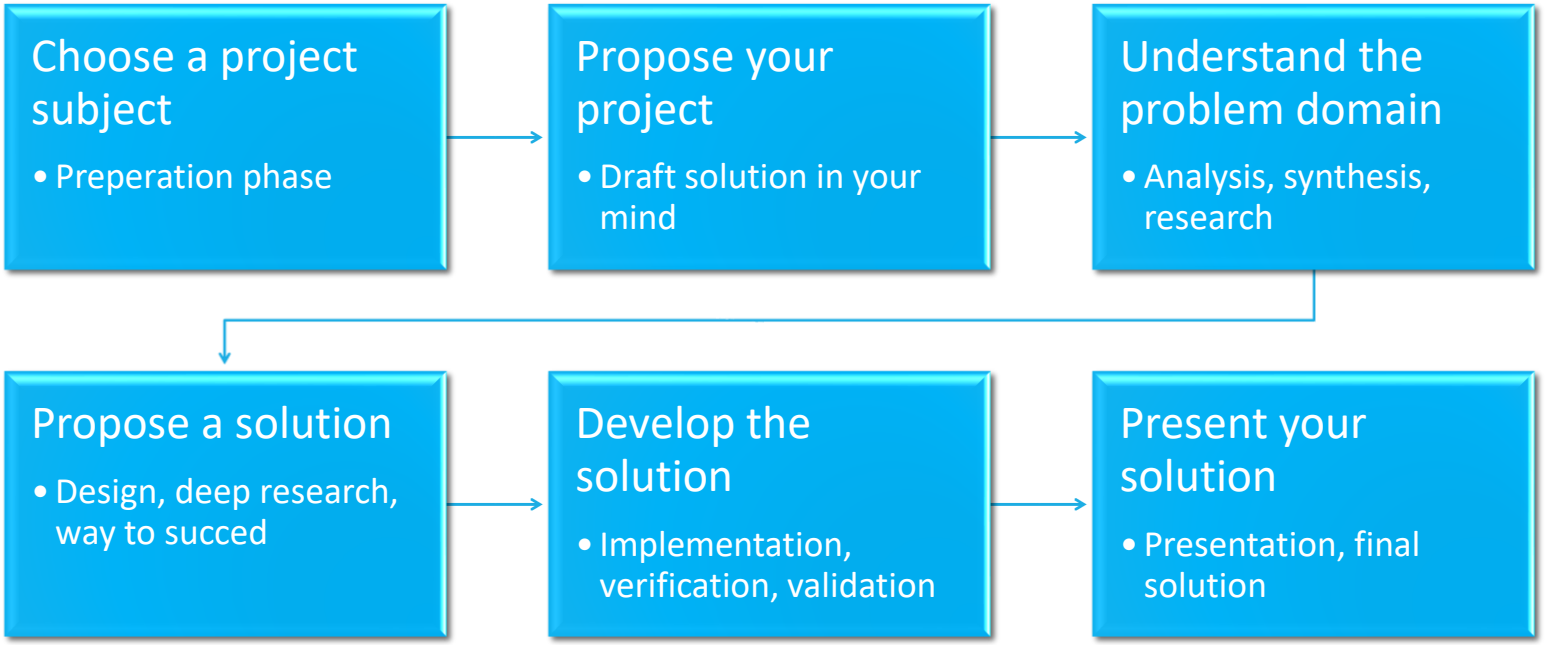
General Information

SYSTEMS ENGINEERING

Project Activites



Project Activites

- You will develop a «Project» to apply the course subjects.
- First you will choose a subject in parallel with course objectives.
- Then you have to submit 4 project reports:
  - Report-1: Proposal (Week-2, after Introduction subject)
  - Report-2: Requirements (Week-5, after Requirements related subjects)
  - Report-3: Architecture (Week-9, after Architecture subject)
  - Report-4: Development & Test (Week-10, after Development and V&V subjects)
- At the end of the term you have to present your projects (Weeks-14/15).
- You have to submit the final report including the updated versions of previous reports during your presentations.

Project Report-1

PROJECT PROPOSAL

- Project name and shortname
- Subject and contents
- Short description (what is it, similar systems, literature survey)
- Schedule (when and what to do)
- Methods to be used (programming, electronic design, etc.)
- Estimated budget (effort, sw tools, electronic components, etc.)

Project Report-2

REQUIREMENTS

- Scope of the project (identification, system overview)
- References
- States&modes
- Capability requirements (detailed functionalities)
- Other requirements (safety, security, computer resource etc.)
- Qualification provisions

Project Report-3

DESIGN

- Scope (identification, system overview)
- Referenced documents
- System-wide design decisions (interfaces, physical systems, selected algrotihms, databases, safety, security etc.)
- Architectural design (system components, concept of execution, architectural patterns, etc.)
- Detailed design (Project unique identifier of a software unit, design decisions, constraints, limitations, etc.)
- Requirements traceability (requirements-design units)

Project Report-4

DEVELOPMENT AND TEST

- Scope (identification, system overview)
- Referenced documents
- Prototype user interfaces
- Development environment
- Algorithm and sample codes
- Test description
- Test results
- Requirements traceability (requirements-test cases)

Project Presentations

ONLINE PRESENTATION

- Project scope, identification, system overview
- Schedule, project details
- Project requirements
- Project design
- Project implementation and tests
- Lessons learned
- Key points for systems engineering

Final Project Report

AT THE END OF THE PRESENTATIONS OF YOUR PROJECTS

- You have to provide your final reports including;
  - Completed and corrected reports 1, 2, 3 and 4
- Additionally you are requested to write down a comment paper;
  - 1 page length
  - Indicating your earnings
  - Your systems engineering approach to your project
  - Relationship between your future targets and this project in the scope of systems engineering

Report Format

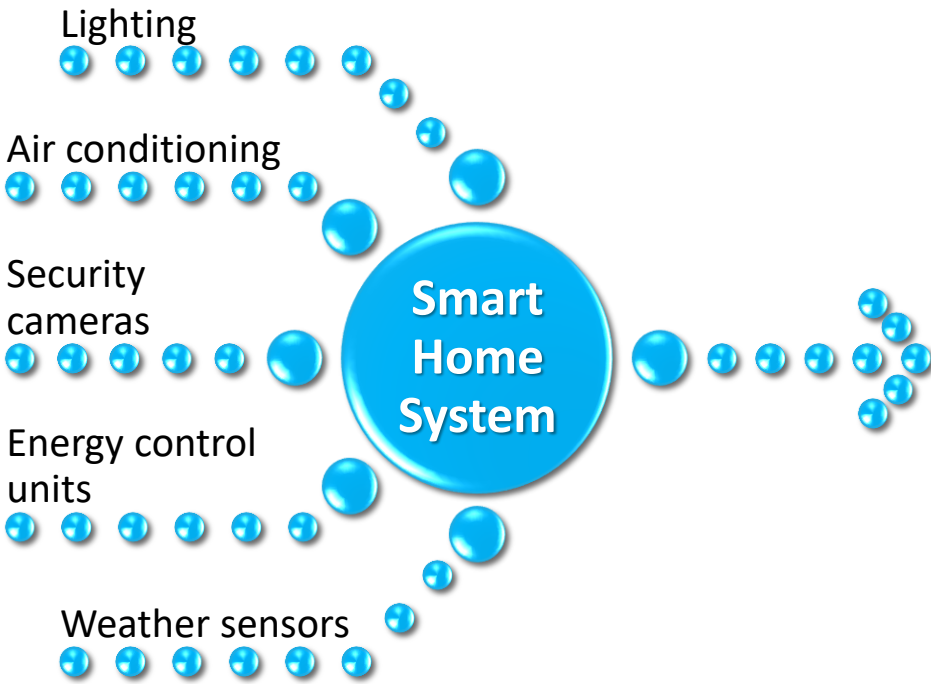
SUBMIT YOUR REPORTS IN THE FORMAT BELOW

- Submit only one pdf file, do not submit any other formats (.docx, .xlxs, .pptx etc.).
- Do not submit diagrams and other figures separately in different formats, add them into your reports.
- Name your report files as: NameSurname_ReportName_Date (Example: OrkunZorba_Proposal_0202201).
- Do not give unnecessary information. Provide only the required ones.
- Submit your reports on time, no extensions will be given.

Project Subject

SYSTEMS ENGINEERING

Smart Home


Lighting
Air conditioning
Security cameras
Energy control units
Weather sensors
Smart Home System


SMART HOUSE

What is it?

- Home automation is a proper way to control and monitor different day to day devices and appliance that we use at home.
- These include held lighting, air conditioning, garage doors, security cameras, motion sensors, energy control units and whether sensors as well.
- Home automation solutions largely vary depending upon the functionality and scope.

What will you do?

- Most modern systems feature a central controlled panel also known as the head.
- The head of the home automation system connects to the home Wi-Fi network and becomes a primary interface through which all of your home utilities to be controlled remotely.
- You are requested to develop a prototype home automation system.

What will it include?

- This system will be used for all appliances ranging from thermostats, security cameras, lights to weather meters, motion sensors and energy control units at home.
- New appliances and devices can be added to the system in the future.
- User of the system can control the appliances from a smart phone, tablet or PC remotely.
- System will be used 7 days 24 hours and any failure of a component is requested to be repaired in a day.

Purpose of the project

- To be able to develop a system project.
- To be able to define requirements; design, develop and test the product in a system approach.
- To present the project with all phases performed.
- Developing an ability to have a **system perspective** at the end.

Project Proposal Report

SYSTEMS ENGINEERING

Proposal report

- To plan the project
- To estimate the work to be done including efforts and budget
- To give the basic information showing that you understand the basic set of the requirements
- *Proposals generally include a basic architecture of the system*

Contents

1. Project name and shortname
2. Subject and contents
3. Short description
4. Schedule
5. Methods to be used
6. Estimated budget

1.Name&shortname 2.Subject&contents

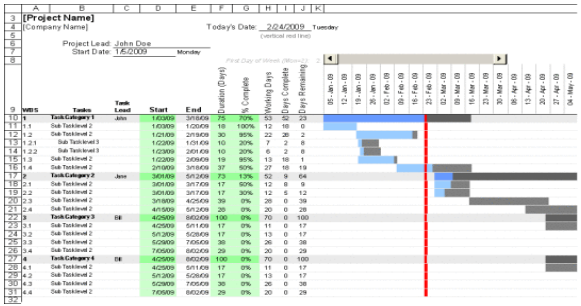
- Give an explanatory name to your project
  - *A Home Automation System*
- Use short name or abbreviation
  - *HAS*
- Write the details about the project subject
- Give a brief summary
- Write down the contents and main section of the project

3.Short description

- What is it? What are the main functions?
- Similar systems in the world
- Literature survey
- References

4.Schedule

- Who does what and when?
- Total duration, tasks and milestones
- MS project can be used
- Gantt charts can be used



5.Methods to be used 6.Estimated budget

- What will you do during the development of the project?
- Reports to be submitted
- Methods of programming, electronic design, other technical issues.

- Effort estimation; man-hours/man months (average costs can be gathered from open sources)
- SW tools to be used
- Electronic components to buy

Total budget of the project