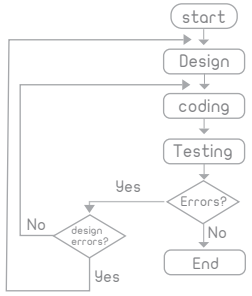
Flow Chart Structure

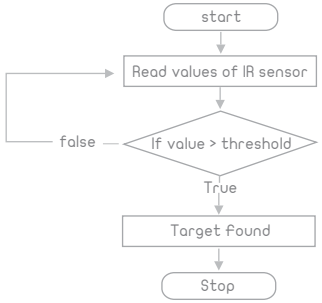
symbol	name	function
	start/end	an oval represents a start or end point
	arrows	a line is a connecter that shows relationships between the rep-resenta-tive shapes
	input/output	a parallelogram represents input or output
	process	a rectangle represents a process
	decision	a diamond indicated a decision

Examples of flow Chart:

Software Development

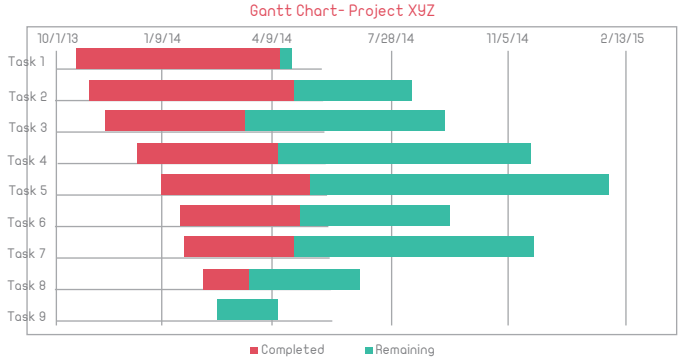


(Embedded System)



▶ Project timeline

- Helps to organize the work in steps with the appropriate time frame to complete it.
- It shows the exact time taken for each step to be completed (start to finish).



▶ Testing the project

This stage is considered to be one of the most important stages in implementing the project in order to get the required results. It ensures success by testing each part of the project, and make sure it is done fully according t o the plans with documenting each step. The following table makes it easy to document each test part of the project to check its success:

Test Case Template

Project Name				Test Date		
Test Case ID : Test priority (Low/Medium/High) : Module Name : Test Title : Description:						
pre-conditions:						
Step	Test Step	Test Date	Expected Result	Actual Result	Status pass/fail	Notes
post-conditions						

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Planning your Graduation Project

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▶ Follow the appropriate pathto execute your graduation project

- What is your project's idea?
- Is it a creative, transformational or complementar idea?
- Start with analyzing the idea, challenges & identify the project implementation requirements.
- Identify the type of plan needed to manage each stage of your project, how to structure the project work stages (work breakdown structure) or use a timeline.
- Draw mind maps for the project (circuit diagram, block diagram, flow chart, etc.)
- Start with the implementation stages (programming, integration, testing and results)

▶ Analyze your idea using the following table

Development ideas	Solving an existing problem	Interface with another system

▶ Research phase

Examples of research methods in

▶ Devices: electrical circuit

- Find places to buy the electronic components, from local markets or the Internet.
- Best quality and price taking into account project budget.
- Find the components data by reading the data sheet of the electronic components.
- Search for the function of each component and its principle of work in the project.
- Test the components and connect them to the project circuit
- Download the proper software to program the electronic components
- Find different methods to program the components; For example: Arduino, and the best libraries used for programming it.

▶ Programs: designing a webpage

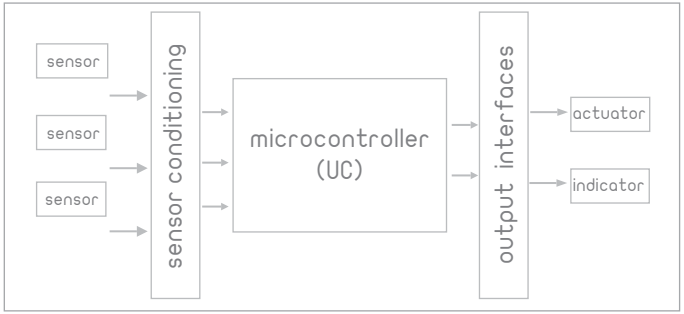
- Search for the best programming language before downloading the software
- Read books related to webpage programming & development.
- Download the software which has the proper running environment for your webpage
- Analyze the webpage and find how it functions and how it serves the user.

▶ Mind Maps

Before starting any project, you have to make a plan; to know the inputs and outputs of the project and the processes that it undergoes, and the requirements to arrange and conduct these operations. It is important to know the actions that have been taken to obtain the desired results, which will be easily analyzed before implementing the project in the engineering and programming fields. For example: (chart pictures)

Block Diagram of Embedded Syste

Embedded System General Block Diagram



Block Diagram of Computer Structure

Block Diagram of Computer Storage Unit