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1. Project Development

1.1 Introduction

Provide here an overview of the contents (structure) of this chapter.

1.2 Ideation

1.3 Concept

1.4 Design

1.4.1 Structure

Add and explain thoroughly the: (*i*) initial structural drafts; (*ii*) material selection; (*iii*) detailed drawings; (*iv*) 3D model with load and stress analysis; (*v*) colour palette.

1.4.2 Smart System

Hardware

Include and explain in detail the: (*i*) black box diagram; (*ii*) hardware component selection (use tables to compare the different options for each component; (*iii*) detailed schematics; (*iv*) power budget.

Software

Describe in detail the: (*i*) use cases or user stories for the smart device and app; (*ii*) selection of development platforms and software components (use tables to compare the different options); (*iii*) component diagram.

1.4.3 Packaging

Present and explain the: (*i*) initial packaging drafts; (*i*i) detailed drawings; (*iii*) 3D model with load and stress analysis, if applicable.

1.5 Prototype

Refer main changes in relation to the designed solution.

1.5.1 Structure

Detail and explain any changes made in relation to the designed solution, including structural downscaling, different materials, parts, etc.

1.5.2 Hardware

Detail and explain any change made in relation to the designed solution. In case there are changes regarding the hardware, present the detailed schematics of the prototype.

1.5.3 Software

Detail and explain any changes made in relation to the designed solution, including different software components, tools, platforms, etc.

The code developed for the prototype (smart device and apps) is described here using code flowcharts.

1.5.4 Tests & Results

Hardware tests

Perform the hardware tests specified in 1.6 Tests. These results are usually presented in the form of tables with two columns: Functionality and Test Result (Pass/Fail).

Software tests

Software tests comprise: (i) functional tests regarding the identified use cases / user stories; (ii) performance tests regarding exchanged data volume, load and runtime (these tests are usually repeated 10 times to determine the average and standard deviation results); (iii) usability tests according to the System Usability Scale.

1.6 Summary

Provide here the conclusions of this chapter and make the bridge to the next chapter.

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