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Project: Report

# Marketing Digital Outdoor with gesture interaction — Problem statement

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# 1 Introduction

The present work illustrates the application of the two first stages of the Waterfall methodology — Analysis and Design — to develop a Television (TV) remote control. This type of project begins with the establishment of a contract between the client (Samsung company) and the project team, clearly defining the problem statement and deriving the product requirements and constraints associated to the project. It should be noted, however, that both roles are played out by the authors. A market research is performed to gain more insight over this market and the product placement, and the product overall characteristics.

In the analysis phase, the product requirements are derived — defining the client expectations for the product — as well as the project constraints — what the environments limits about the product. Finally, the theoretical foundations are outlined, providing the basic technical knowledge to undertake the project.

In the design phase, the product development starts, specifying the system in terms of hardware and software and its associated interfaces, the error handling required, and the design verification.

## 1.1 Problem statement

COVID pandemics presented a landmark on human interaction, greatly reducing the contact between people and surfaces. Thus, it is an imperative to provide people with contactless interfaces for everyday tasks. People redefined their purchasing behaviors, leading to a massive growth of the online shopping. However, some business sectors, like clothing or perfumes, cannot provide the same user experience when moving online. Therefore, one proposes to close that gap by providing a marketing digital outdoor for brands to advertise and gather customers with contactless interaction.

Scenting marketing is a great approach to draw people into stores. Olfactory sense is the fastest way to the brain, thus, providing an exceptional opportunity for marketing [1] — “75% of the emotions we generate on a daily basis are affected by smell. Next to sight, it is the most important sense we have” [2].

Combining that with additional stimuli, like sight and sound, can significantly boost the marketing outcome. Brands can buy advertisement space and time, selecting the videoclips to be displayed and the fragrance to be used at specific times, drawing the customers into their stores.

Marketing also leverages from better user experience, thus, user interaction is a must-have, providing the opportunity to interact with the customer. In this sense, when users approach the outdoor a gesture-based interface will be provided for a brand immersive experience, where the user can take pictures or create GIFs with brand specific image filters and share them through their social media, with the opportunity to gain several benefits.

Summarizing, the project consists of a marketing digital outdoor with sound and video display, and fragrance emission selected by the brands, providing a gesture-based interface for user interaction to create pictures and GIFs, brand-specific, and share them on social media.

## 1.2 Context and motivation

### 1.3 Market research

A TV remote is a device which is used to operate a television from distance in a wireless mode. It also makes the TV usage simpler, more user friendly with its suggestive buttons. These buttons control functions such as power, volume, channel switch and various other features.

TV remotes are composed by the TV remote Shell, the TV remote membrane, one LED and a data acquisition & Infrared emitter PCB, as illustrated in Fig. 1.1. The unit cost of universal TV remotes is about 3 to 5 EUR.

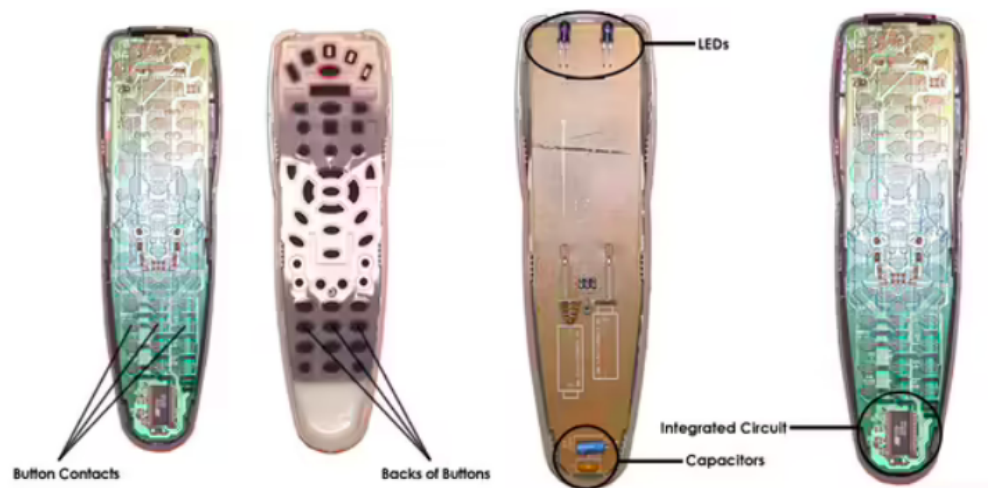


Figure 1.1: TV Remote control bill of materials, withdrawn from [3]

As can be seen in Fig. 1.2, the amount of televisions sold per year is about 200 million per year, with a tendency to increase over the next years. Thus, at least the same amount of TV remotes sells is expected, as

## 1.4. Project goals

each new TV requires one remote control, but it is expected to be exceeded due to TV remote replacement arising from its malfunctioning or bad usage.

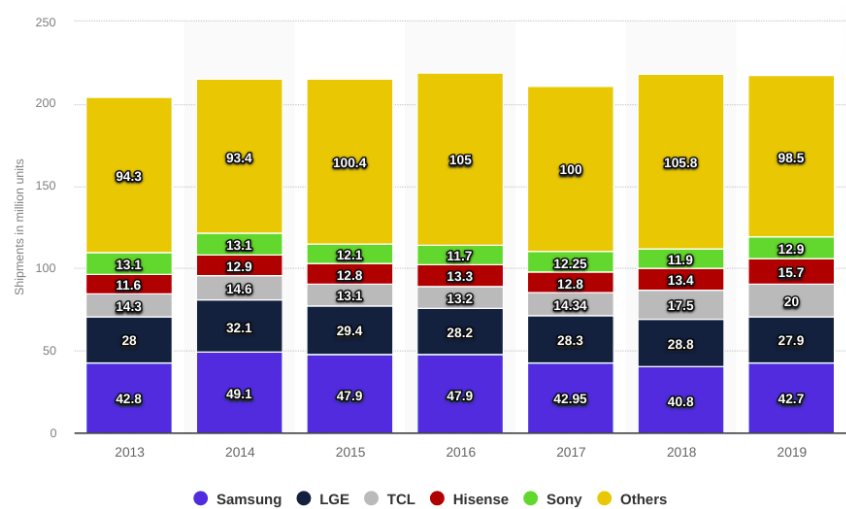


Figure 1.2: Global LCD TV unit shipments from 2015 to 2019, by vendor (in millions), withdrawn from [4]

## 1.4 Project goals

Project goals

## 1.5 Report Outline

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