University of Minho

School of Engineering

Electronics Engineering department

Embedded systems

Project: Report

Marketing Digital Outdoor with gesture interaction — Problem statement

José Pires   A50178

Hugo Freitas   A88258

Supervised by:

Professor Tiago Gomes

Professor Ricardo Roriz

October 24, 2021

Contents

List of Figures

List of Listings

List of Abbreviations

1 Introduction

The present work illustrates the application of the project meant to do for the course of Embedded Systems, required from the professors from Embedded Systems Research Group (ESRG). This type of project begins with the establishment of what type of prototype do the students propose to do, followed for its implementation. This implementation needs to follow all the steps of the Waterfall Model in order to give students the capability to work the best way possible, either in group or in solo.

It should be noted, however, that there are some requirements and constraints gave by the professors which means that not everything is decided by the students. To have the capability of bypass them is one of the main characteristics of attending and working in engineering.

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 Digital Outdoor is essentially traditional outdoor advertising powered up by technology. The pros of a digital outdoor to a traditional one is mostly the way that it captivates the attention of consumers in a more dynamic way. It can also change its advertisement according to certain conditions, such as weather and/or time. Some researches tells that the British public sees over 1.1 Billions (BN) digital outdoor advertisements over a week [3], which can tell how much digital marketing is valued nowadays.

When talking in numbers, "At the end of 2020, despite the Covid wipeout, the Digital Out-Of-Home (DOOH) market was estimated to be worth \$41.06 BN, but by 2026, nearly two out of three (65%) advertising executives predict this will rise to between \$50 BN and \$55 BN. A further 16% expect it to be worth between \$55 BN and \$60 BN, and 14% estimate it will be even bigger" [4].
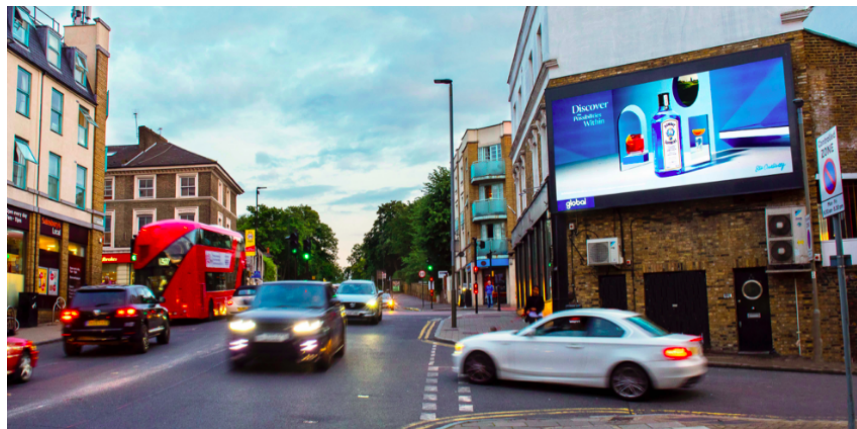

Figure 1.1: Example of a Digital Outdoor, withdrawn from [3]

Scent market is the art of taking a company's brand identity, marketing messages, target audience and creating a scent that amplifies these values. That's because " a scent has the ability to influence behavior

and trigger memories almost instantaneously. When smell is combined with other marketing cues, it can amplify a brand experience and establish a long lasting connection with consumers." [5]

Ambient scent uses fragrance to enhance the experience of consumers with different purposes, whereas scents in scent branding are unique to each company's identity. According to a Samsung study: "when consumers were exposed to a company scent, shopping time was increased by 26% and they visited three times more product categories" [6]. Also, "the digital scent technology market is expected to grow from $1.0 BN in 2021 to $1.5 BN by 2026, at a Compound Annual Growth Rate (CAGR) of 9.2%." [7]

Figure 1.2: Attractive Opportunities in the Digital Scent Technology Market, withdrawn from [7]

The market growth can be attributed to several factors, such as expanding application and advancements in e-nose technologies, increasing use of e-nose devices for disease diagnostic applications, emerging Research and Development (R&D) activities to invent e-nose to sniff out COVID-19, and rising use of e-nose in food industry for quality assurance in production, storage, and display.

1.4 Project goals

Project goals

1.5 Report Outline

Bibliography

[1] What the nose knows. URL https://news.harvard.edu/gazette/story/2020/02/how-scent-emotion-and-memory-are-intertwined-and-exploited/. accessed: 2021-10-23.

[2] Martin Lindstrom. Brand sense: How to build powerful brands through touch, taste, smell, sight and sound. Strategic Direction, 2006.

[3] Digital outdoor advertising: The what, the why, the how. URL https://bubbleoutdoor.com/digital-outdoor-advertising-what-why-how/. accessed: 2021-10-24.

[4] Digital outdoor market to be worth $55 BN in 5 years. URL https://www.decisionmarketing.co.uk/news/digital-outdoor-market-to-be-worth-55bn-in-5-years. accessed: 2021-10-24.

[5] Scent marketing; type of sensory marketing targeted at the olfactory sense, . URL https://www.air-aroma.com/scent-marketing/. accessed: 2021-10-24.

[6] Scent basics: What is scent marketing, scent branding and ambient scent, . URL https://reedpacificmedia.com/scent-basics-what-is-scent-marketing-scent-branding-and-ambient-scent/. accessed: 2021-10-24.

[7] Digital scent technology market with covid-19 impact analysis, . URL https://www.marketsandmarkets.com/Market-Reports/digital-scent-technology-market-118670062.html. accessed: 2021-10-24.