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| **DESIGN AND CONSTRUCTION**  **OF**  **SMART-INTERACTIVE BILLBOARDS**   |  |  |  |  | | --- | --- | --- | --- | | Image result for kyambogo logo | ***Muhanguzi Tobias*** |  | ***Sendikadiwa Marvin*** | | ***BEng. Telecommunications Engineering, Kyambogo University, Kampala, Uganda*** | ***BSc. Computer Science,***  ***Makerere University, Kampala, Uganda*** | | ***mztoby12@gmail.com*** | ***sendimarvin@gmail.com*** | | ***+256705740024*** | ***+256702502321*** | | | |
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***“THIS IS A SKETCHY PROPOSAL IDEA PRESENTED TO ASSESS ITS FEASIBILITY”***

A Project Proposal Submitted to |**…………………………………|**

To provide a more effective way in how billboard outdoor advertising is currently done by outdoor advertising companies in Uganda

September 1, 2018

**INTRODUCTION**

* 1. **Background**

Currently all over the world, advertising is the number one marketing tool for bringing choices of products and services to potential customers in all kinds of businesses. On a large-scale level (Large enterprises), the best way to let people know what you are selling is creating a company website. However, this is proven to be more expensive in terms of development and maintenance services. In fact, the website itself has to be advertised on social media, for example, Facebook, Twitter, Local TV channels, Radio stations etc.

For small medium enterprises, word of mouth is proven to be the best efficient marketing technique. Given its less requirements in terms of investment, even for a voice broadcast on a speaker, it’s impossible to capture a mass’ attention.

According to staff, 2018, “Billboards are most effective when located close to the business advertised. Because of their high cost, they're usually used to reach a very large audience, as in political campaigns. They're likely to be too expensive for most small firms, and some communities have strict ordinances governing the placement of billboards.” In Uganda, Billboards are some of the dominant marketing tools for marketing. Due to expenses involved, these still support advertisements for large enterprises only. The main causes of rapid increase in costs of advertisement space on billboards are: -

1. Increase with the number of people visiting the place.
2. The size of the billboard itself.

Our intention is to not only limited to reducing marketing expenses to retailer shops but also to bring closer to products and services sold around a give locality.

* 1. **Problem Statement**

As per the current billboard market techniques, which are local and non-attractive to the digital generation. LCDs displays which provide videos and more information about the product, are mostly found in stadia are expensive to maintain.

For an ordinary billboard of a stationary display, less information is provided, and space is wasted by advertising only one product on either sides.

* 1. **Objectives**

**Main Objective**

* To design and construct smart-interactive billboards, whether ordinary or digital (LCD display) that targets the specific market thereby avoiding wasteful advertising.

**Specific Objectives**

* To develop billboards that uses wireless technologies like Bluetooth, Wi-Fi, etc. to send adverts to potential market/ buyers on the move, that lets retailers upload there advertises as well to the billboard database
* To develop the hardware kits to be installed, for the wireless communication.
* To develop the software and application for the database management and interactive user interface for the retailers and consumers.
  1. **Scope**

The project will include four phases.

* System development.
* Publicity program
* System implementation.
* System maintenance.
  1. **Significance**

There are two main application areas for the system these are; indoor (Arcades, shopping malls, etc.) and outdoor (Markets and shopping centers, along roads and round abouts). On installing the system around the listed areas, searching time for shoppers will significantly reduce since the phone application will show them what is available, where it is located and how much it costs point blank.

**1.5.1 Justification**

Going LCD billboard displays would be the way, but from the current level of development, and cost, we hope by implementing this idea on the ordinary billboards and targeting specific groups of consumers would be viable.

**LITERATURE REVIEW**

**2.1 Digital billboards**

Thanks to the major LCD display breakthrough of 100-inch barrier, screens of this size are now able to be used in airports and on a small record in shopping centers. However, such displays need a strong protective shield for outdoor display in order to withstand the drastic weather conditions (cost element, of maintenance).

**2.2 Market for Digital posters**

Edwards (2008) commented, “The market for digital posters is growing at a steadily if not breakneck rate. A study at info trends total revenue for digital posters would hit $2.6bn by 2011, up from $1.1bn at the end of 2006.” The above estimate roughly held for the year 2011 and digital posters market have been growing up to date. In Uganda, Noticeable numbers of these posters are found for indoor advertisement. For outdoor, when doing this literature, about 2 digital posters were visited in places which include but not limited to Acacia avenue and Jinja road. This study shows that there is no threatening competition if another company engages in digital advertising.

Though digital posters may be expensive to install, they are the least expensive in the long run. I.e. after expenditure on LED screens, their responsiveness gives them an added advantage. According to Porter (2008), “people are still amazed that ‘sales went up by additional 10 percent when we placed the screen at eye level near the product’…many people still get this wrong today.” The biggest advantage is their responsiveness. Animations say louder than words on pictures. In fact, what was missing in these billboards was interactivity. This gives the shopper an added advantage to connect their phones to the billboard’s network. If this was in place, maybe a much more significant increase in sales would have been visible from the 10 percent sales.

**3.0. Methodology**

As detailed in the specific objectives, the project will be achieved as follows;

1. We shall develop the hardware that will be installed on the current billboards to create the wireless network for (“blue casting”, “WIFI feed”, channel) communication, where the customer will view the adverts available on the billboards’ feed and download them or stream them on the go. This could be taken to be like creating hotspots, the Bluetooth would be for free adverts, will the WIFI feeds would be for paid adverts.

The theory behind this, hardware requirement is technical and a typical telecommunication engineers or computer engineer can handle given the resources, and detailed system evaluation and analysis.

1. On the software development part, we shall develop a database and user interface- An application called “**Ad feed**” spark our minds. Which the retailer/producers would use to upload the Ads in video or slide show format on to the billboards. So that, when the billboard is an LCD display, it would display the Ads in a queue, otherwise, for ordinary billboards (stationary picture), the Ads are stored for broadcasting, on the hotspot feeds (channels).

This Application will provide a list of available Ads in category according to the type of product, whether paid or free, etc. connection can be through scanning a QR code on the poster, the authentication be done when payment requirements are met.

This task can be achieved by a team of IT and computer scientists

1. Billing and returns to the Advertising Agency

Of course, any capital investment, and resource investment would yield monetary returns, for a company to be in business.

These issue are dealt with in the design of the system, with the help of a business mind, possibly. The owner of the Ads is charged according to the length and the time the Ads remain on the broadcast list, billing can be through scratch cards, similar to airtime cards, of payment through mobile money and electronic tokens.

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