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**Abstract**

Our goal of the project was to design and realize a marketable electronics related project addressing an existing unsolved problem of current society. So we focused on a main problem that majority of the electronic student faces every now and then. That is the high cost of electronics testing equipment. We have decided to design an affordable yet accurate student electronic oscilloscope. Then technical aspects and feasibility were considered and put into test. A market plane also was carried out and a marketing survey was conducted to get the ideas from the students and other potential customers. From that properly identified students’ needs and most essential features that we must include into our student oscilloscope. This whole procedure carried out within a time period of 6 weeks and all the above aspects were covered as much as possible with the help of team effort and courage of all group members.

# Introduction

**Background**

Our main goal was to come up with a simple yet useful product that can address an unsolved problem. After a number of brainstorming sessions, we decided to design a budget friendly student oscilloscope for the benefit of students and electronic hobbyists. Since the price of existing products were super high a perfect market vacuum was there for our product.

**Problem definition**

As mentioned above since the testing equipment prices are so high students will always have to come into a lab to carryout there testing. Even if a multimeter could be used to get some measurements sometimes it’s essential to see the waveform to properly understand what’s going on in the circuit. Our product has most of the main features of a high end oscilloscope. Even though our product is not yet fully portable (since it needs an AC power supply) we have planned to add a rechargeable battery so that it will be fully portable and the user will be able to use it in any place.

**Enclosure Design Report for Low-Cost Portable Oscilloscope**

Introduction:

This report describes the enclosure design for a low-cost portable oscilloscope. The goal of the design was to create a compact and user-friendly device that is easy to hold and operate, while also being cost-effective to produce.

Design Considerations:

The dimensions of the enclosure were determined to be 110mm in length, 100mm in width, and 55mm in height. The primary objective was to minimize the size of the enclosure to reduce production costs. The enclosure was designed in a way that the device can be easily and tightly held by a single hand, making it more user-friendly.

The display of the oscilloscope was positioned in such a way that when the device is placed on a flat surface, the top surface with the display is not parallel to the flat surface. Instead, it is tilted towards the user, allowing for more comfortable viewing of the display. The controlling buttons and the scale changing switch were placed around the display, making them easily accessible to the user.

The power on/off button and reset button were placed on the right side of the enclosure. This was done because the operation of these buttons differs from the main controlling buttons, and placing them on the right side makes them easily accessible to the user.

Future Upgrades:

In future upgrades of the product, we aim to reduce the height of the device by 50%. This will make the device even more portable and cost-effective.

Conclusion:

The enclosure design for this low-cost portable oscilloscope was developed with the goal of creating a compact, user-friendly device that is easy to hold and operate, while also being cost-effective to produce. By tilting the display towards the user and placing the controlling buttons and scale changing switch around the display, the device is more comfortable to use. Placement of power on/off and reset button on the right side make it easily accessible to the user. Future upgrades of the product aim to decrease the height of the device by 50%, making it even more portable and cost-effective.