White Lab Component Vending Machine

Design and Build Report of a Component Vending Machine for the Undergraduates for White Lab

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Key words: this and that

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Acknowledgments

Abstract

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1 Introduction

Well, and here begins my lovely article.

1.1 Subject and motivation for the Research

meh

1.2 Background to the Research

adding it here

1.3 Objectives of this Research

adding more

1.3.1 The Significance of the Research

a little here

1.4 Scope and Limitations of the Research

something something

1.5 Plan of Development

blah blah

2 Literature Review

some more stuff

3 Design and Prototyping Methodology and Procedure

In order to begin the design process a clear methodology was needed to proceed in order to get the best results. This included a set of rules to follow when designing and testing prototypes and more. This section aims to discuss these and elaborate on why it will make the design process more effective.

3.1 Design

The methodology behind the mechanical design will be reviewed first then circuit design, software design and and finally prototyping:

3.1.1 Mechanical Design

In order to make an effective design certain constraints were first laid out to limit the scope and complexity of the design:

- The design should be simple to limit complex movements.
- Although it should be simple, simplicity should not be the main priority where complexity is needed.
- Reduce moving parts in order to limit mechanical failure.
- Identify failure points and modes.
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3.1.2 Circuit Design Methodology

The circuit design although trivial needs some consideration before design can begin:

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3.1.3 Software Design Methodology

The software for the machine is one of the most important parts of consideration as it will impact each part of the design and how they interact, this and more must be considered when designing the software:

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3.1.4 Prototyping Methodology and Procedure

Detailed planning and methodology was needed in order to test the viability of the prototypes for the final build:

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