

Product design and prototype making - lab report example

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Product Design and Prototype Making

The paper "Product Design and Prototype Making" is an outstanding example of a lab report on engineering and construction. The main aim of the report was to come up with a question list following the inquiry from the client. The report also aims at improving the interpretation of the needs of customers and taking the necessary actions. Additionally, the paper also helps to gain the relevant experience to come up with a preliminary product specification (Chou and Hsiao, 2005).

2. The objective of the Report

ABC Limited is one of the leading companies in manufacturing company. Based on the company's inquiry, the report will provide some of the electronic timer quotations. The electronic timer will be used to control the chemical processes in the company. To perform this, more information was gathered from the client and recorded directly to the logbook.

3. Question List

What are the necessary components needed to design, implement, and a test a timer?

Why are the listed products and components important in the design, implementation, and testing?

What are the specific functions of the components needed for the above-named components?

What are the appropriate measures needed for the design, implementation, and testing?

What are the effects of input frequency?

What is the limitation of voltage?

4. The interpretation of the raw data

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When R1 was connected the V_b total was found to be 20mV while the V_b for the alternating current was found to be 40mV. The main function of R1 was to reduce the Direct Current which was placed at the bottom of the transistor. When C1 was disconnected the V_b total came to 24mV while the Alternating current for V_b was recorded at 50mV. The main purpose of the C1 was to add the Direct Current component into the transistor's bases. In situations when the C1 was absent, the 0.7 V_{oc} threshold needed was subtracted so that the transistor could be turned on. Additionally, in the process of the experiment, R3 increased to 5.1 kilo-ohms (Xie and Shi, 2010). The function of R3 on this case was to limit the current that went into the base, therefore, reducing the collecting current which later increased voltage via the collector. One of the limitations that were experienced is that when the V_s exceeded 0.21, V_b started to experience some distortion and the highest and the maximum voltage had already been reached. The corresponding graphs for the experiment are as shown in the diagram in the paper.

From the graph it is all evidence that the peak value is in a constant trend this is unlike the AC gain which decreases with an increase in the peak values.

Planning Gantt Chart

The design, implementation, and testing of the timer took 45 days. Some of the tasks carried within the time frame include concept generation, concept selection, cost estimation, top-down design, simulation, integration, review, resting and then release. The summary of the start, duration, and end date

are tabulated below. The Gantt chart also provides a visual representation of the tasks associated with the design, implementation, and testing of the timer.