



UNIVERSITI
TEKNOLOGI
MARA

TECHNOLOGY ENTREPRENEURSHIP (ENT600)

NEW PRODUCT DEVELOPMENT

SMART WHEELBARROW

FACULTY & PROGRAMME : FACULTY OF MECHANICAL ENGINEERING
(EM220)

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1.0 EXECUTIVE SUMMARY

The conventional wheel barrow was significantly developed to reduce the burden of people while carrying and transfer load as well as saving their time for completing their work. With the rapid growth of wheelbarrow use, the product offers tremendous advantages to construction worker, as well as the thousands of other workers assigned the responsibility of carrying loads for any project every day.

Our product will be positioned as a high end equipment in which enables workers to carry more loads in a time via improvement made to the tray in term of capacity. The amount of tires being install also upgraded for the purpose of improving stability and absorbing shock. There is currently no other company that produces this type of wheel barrow with the functional features we are going to develop.

This wheel barrow will be sold in retail markets where wheel barrow are sold, sold through traditional online software vendors, sold via the company website, sold via targeted direct mail campaigns, and also through cooperative agreements with leading wheel barrow manufactures.

2.0 INTRODUCTION

As we know, we need to use a lot of energy when using a standard or conventional wheel barrow. The energy needed will increase as the heavier the load in the wheel and barrow. So, as a life changer, we create an upgraded or an improvised wheel barrow to reduce the energy and to increase the stability while using the wheelbarrow.

The wheel barrow was designed to distribute the weight of its load between the wheel and the operator so enabling the convenient carriage of heavier and bulkier loads than would be possible were the weight carried entirely by the operator. The use of wheel barrows in nearly every country in the world for construction, roadwork, masonry, landscaping and also for gardening.

Why do our group choose wheelbarrow as the product? This is because we have agreed together that wheelbarrow is one of essential tool in people's daily life nowadays that helps them to carry the loads off their back. Wheelbarrow is used to transport heavy loads within particular distance. Since the conventional wheelbarrow has its lacks in certain point of view, therefore, we come out with some new ideas to improvise the wheelbarrow in order to make the user's works easier.

Wheel barrow is one of the simple mechanical machines that able to carry out an immense amount of work with minimal effort by simply moving the load over a greater distance. This tactic of making work easier is performed with simple machines such as the lever. There are three classes of levers, which are Class 1 (fulcrum in the middle), Class 2 (resistance or load in the middle) and Class 3 (effort in the middle).

Therefore, wheelbarrow is an example of the second-class lever. The load is at the center of the barrow when the effort is applied on one side of the resistance and the fulcrum is located on the other side. A single wheel at the front of the cart is pushed forward when we grasp the handles on either side at the back. The wheelbarrow is moved backward by wrapping each hand around the pole-like handle on either side of the handles lift it off the ground while pushing it forward.

2.1 Problem Statement

Since the basic design of conventional wheelbarrow has remained constant hundreds of years ago. There are several specific problems that exist with current conventional wheel barrow design. One of the main problems is because of one wheel design, the wheel barrow is not particularly stable and can be difficult to balance when it is fully loaded. Another problem with the current design is its instability. When loaded, current wheel barrows have a tendency to overturn easily. This is due to a high-center of gravity and lack of adequate lateral support. Next, the lower handles placement than the waist which is non-ergonomic design cause back ache to the user. Then, one wheel design cause the user needs a lot of force to lift and carry the conventional wheel barrow. Lastly, small tray compartment limit the load can be carry.

2.2 Methodology

1. Focus group

- i. Home owner
- ii. Landscape company
- iii. Construction company

Based on the survey that we made, only 10 respondents done the survey. the improvement of the wheelbarrow based on the result's survey. The sample of survey is shown below.