



اَوْنَبُوْرُ سَيِّدِيْ تَتِيْكُوْلُوْ كِيْ مَبَارَا
UNIVERSITI
TEKNOLOGI
MARA

FINAL YEAR PROJECT

MEC332

FINAL YEAR PROJECT:

AUTOMATIC SHELF TRAVELLING
LUGGAGE (ASTRAL)

PREPARED BY:

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INTRODUCTION

1.1 Overview of the Project

We as a student of a Mechanical Engineering from Universiti Teknologi Mara Cawangan Johor Kampus Pasir Gudang were assigned to do some research and brainstorming on our final year project. This final year project is a part of the required subjects to be taken this semester before advancing into industrial training program. Thus, every students taking this subject need to innovate a product design based on the assigned theme. This project helps student to gain confidence and give the ability to complete a task under less supervision of lecturers. With this, problem solving skills in areas of designing analysis can be gain. Other than that, student skills of designing using computer aided design also increased.

Nowadays, people loves to travel around the world either because of work or vacations to gain experienced of new culture. These people have their own style on how they want to travel. Some people preferred to be a backpacker especially youth which they carry their backpack to move from a place to another., wearing a backpack can cause multiple health problems such as muscle strain, pinched nerves and back pains.

Therefore, luggage or suitcase are introduced to help people travel with comfort but most people have personal luggage that has its own limitations especially on space management. So, we designed a smart luggage with multifunctional features. For example, this smart luggage helps to reduce unpacking time and it can also avoid luggage from missing. This is because, when people are on vacation, they unpack their things but unpacking usually takes time. Thus, this luggage will help the time management because people can just pull out a shelves that were built in the luggage to reach their things without unpacking it. There are more features of this luggage that were discussed in this report. Besides, the explanation on how this project is conducted was also attached and elaborated.

1.2 Design Objective

The Objective of this project as follows:

1. To design and innovate efficient luggage consumable.
2. To simulate analysis of the innovative luggage design based on stress – strain test.
3. To secure and prevent loss of important thing in the luggage.
4. To provide more hygienic condition, preventing disease and maintaining health.

1.3 Scope of Project

This project is about creating a design of a smart travelling luggage. This smart travelling luggage or we named it as a STRAL is a multifunction luggage with various features that help to ease people during their travelling period. The objective of this luggage project is to provide efficient consumable or usage of a luggage. This is because the luggage help maximizing suitcase space and makes your belongings stay organized during your trip. Other than that, you can also save your time of unpacking your stuff into a cupboard when you are on holiday. This is due to the shelf feature on this suitcase that can be pulled out and extend.

From the selection of material, we assumed that this luggage is very resilience to rough handling. We used polycarbonate material for the luggage case as it is durable and lightweight. These will ensure the quality of our product to market.

1.4 Significant of the Project

Based on the problem statements and objectives, it shows that most people own their personal luggage that has its own limitations especially on space management. For this project, the luggage is modified to match with the customers need as an example by installing a shelf system in the luggage to avoid the clothes and the other necessities to be mixed up. In other words, this project's design objective is to innovate efficient luggage consumable. Next, this project is also to simulate analysis of the innovative luggage design based on stress-strain test.

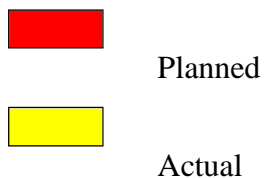
Besides that, this product has a few technologies that could ease the customers such as a GPS tracker, so that the luggage will not accidentally switch with other people and there is also a small space to put a power bank. As everyone own at least one personal gadget and might need to be charged when the battery ran down.

The specialty of this luggage is it's very hygienic because it has a retractable wheel. This function is very useful when the luggage is indoor and customers don't have to worried about the dirty wheels.

1.4 Significant of the Project

| 2 Tasks | | Week | | | | | | | | | | | | | |
|---------|---|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--|
| | | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | |
| 01 | Group Distribution | Planned | | | | | | | | | | | | | |
| | | Actual | | | | | | | | | | | | | |
| 02 | Selecting a supervisor | Planned | | | | | | | | | | | | | |
| | | Actual | | | | | | | | | | | | | |
| 03 | Brainstorming an idea based on the topics given | | Planned | | | | | | | | | | | | |
| | | | Actual | Actual | | | | | | | | | | | |
| 04 | Finalized the title of the project | | | Planned | | | | | | | | | | | |
| | | | | Actual | Actual | | | | | | | | | | |
| 05 | Benchmarking for the product | | | | Planned | | | | | | | | | | |
| | | | | | Actual | Actual | | | | | | | | | |
| 06 | Sketch a design of the product | | | | | Planned | | | | | | | | | |
| | | | | | | Actual | Actual | | | | | | | | |
| 07 | Create a Gantt Chart | | | | | Planned | | | | | | | | | |
| | | | | | | Actual | Actual | | | | | | | | |
| 08 | Creating a survey to know people impression about the product | | | | | | Planned | Planned | | | | | | | |
| | | | | | | | Actual | Actual | Actual | | | | | | |
| 09 | Collecting Data | | | | | | | Planned | Planned | Planned | | | | | |
| | | | | | | | | Actual | Actual | Actual | | | | | |
| 10 | Concept Generation and Evaluation | | | | | | | Planned | Planned | Planned | | | | | |
| | | | | | | | | Actual | Actual | Actual | | | | | |
| 11 | Embodiment of Design | | | | | | | | Planned | Planned | Planned | | | | |
| | | | | | | | | | Actual | Actual | Actual | | | | |
| 12 | Detail Design | | | | | | | | | Planned | Planned | Planned | Planned | Planned | |
| | | | | | | | | | | Actual | Actual | Actual | Actual | Actual | |
| 13 | Conclusion and Recommendation | | | | | | | | | | | Planned | Planned | Planned | |
| | | | | | | | | | | | | Actual | Actual | Actual | |

Gantt Chart



This Gantt chart is a graphical depiction of a project schedule. It is a type of bar chart that shows the start and finish dates of several elements of this project from group distribution, selecting supervisor and creating a survey to know people impression about the product