



اَوْنُوْزِيسِيْتِي تِكْنُوْلُوْجِي مَارَا
**UNIVERSITI
 TEKNOLOGI
 MARA**

NPD TITLE:

FRUIT PICKER

Faculty : Faculty of Health Science

Program : Bachelor of Environmental Health and Safety
(Hons.)

Program Code : HS243

Course : Technology Entrepreneurship

Course Code : ENT600

Semester : 7

Group Name : HS2437A

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Submission Date:

29 NOVEMBER 2018

poor grammar

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TABLE OF CONTENT

TABLE OF CONTENT	i
1.0 EXECUTIVE SUMMARY	1
2.0 INTRODUCTION	1
2.1 Problem Statement	1
2.2 Methodology: Data Collections	1
2.3 Limitations	2
3.0 NEW PRODUCT DEVELOPMENT	2
3.1 Definition	2
3.2 Classification Of Npd	3
3.3 New Product Development Process	4
4.0 CONCLUSION	8
5.0 REFERENCES	8
6.0 APPENDICES	8

1.0 EXECUTIVE SUMMARY

Automatic Fruit Picker is the idea of collection on fruits for farmers which help the production of fruits becomes more efficient. Our innovation are focuses on the agriculture sector nowadays especially for farmers who are focuses on fruit collection for their production. This Automated Fruit Picker is designed to enhance the capability of quickly collection of fruits at orchard or farms in high quantity. Based on the survey, most of respondents agreed to purchase if there is any innovation of Automated Fruit Picker is available in the market. We are proud with the innovation of Automated Fruit Picker and we are looking forward to its continuing growth in the future. We feel that our innovation is uniquely positioned to profit from changes in the industry, and we feel that our innovation has high potential for commercialization in the market.

2.0 INTRODUCTION

2.1 Problem Statement

- Nowadays, farmers use ladder to climb higher trees and pluck fruits using hand manually. This shows picking fruits activities required much effort and not comfort (Montepio, Aromin, & Tuyogon, n.d.).
- Besides, fruit harvesters must be available to work seasonal jobs when fruit is ripe for picking. They must be able to withstand bad weather, such as hot or rain, if fruit needs to be harvested immediately (Tucker, 2017).
- Moreover, they must have good overall health and adequate strength, so they can continually harvest, sort and gather fruit without fatigue. They also must carefully, yet quickly, inspect fruit for signs of disease, insect manifestations or unripe fruits (Tucker, 2017). Therefore, using fruit picker is the easier way to get the higher fruits without ladder to climb and reduced exposure to bad weather. This machine also helps farmers to detect ripe or disease fruits quickly.

2.2 Methodology: Data Collections

There are few methods that have been implemented during data collection process in new product development.

- Firstly, problems and issues that have been arising during farmer's daily routine were identified.
- Secondly, target market which comprising who, where, and how also have been considered in order to select the new product.
- Next, market survey also conducted by distributing questionnaires to customers. Market survey is an essential procedure in developing a new product because it can influence the selection of material, price and another characteristic that will suit customer's choice. Subsequently, the attractive features and unique characteristics the product should have were discussed among group members by evaluating the result from questionnaires.
- Lastly, market testing was done to ensure the product's quality in all aspects have meet customer's satisfaction.

2.3 Limitations

- The limitations on constructing of Fruit Picker are lacking of information and observation because we only do a lot of reading through website.
- Research on the effectiveness of using Fruit Picker to harvest fruit is not conducted.
- We only able to understand how the fruit picker is functioning by watching online videos.
- In the aspect of market research, we do not have enough respondents for the product's research.
- Only few people can answer the questionnaire especially those that have internet access.

3.0 NEW PRODUCT DEVELOPMENT

3.1 Definition

- Fruit Picker is using some technology to pluck ripe fruits off the trees.
- This machine is equipped with hose which served as channel for fruits to roll into the container inside the machine.
- Claw is attached at the end of the hose to grip the fruits and twist it from the trees.

- The claw is operated by using DC motor which converts direct current electrical energy into mechanical energy.
- The Fruit Picker is operated using 24V electric vehicle battery.
- The body of this fruit picker is made up from stainless steel materials which add strength and durability to this machine.
- Furthermore, this machine is also constructed with various features such as camcorder, fruit recognition sensor, motion sensor, load weight sensor and Fruity Control applications.
- Camcorder and fruit recognition sensor are installed at the upper part of hose to detect ripe and damaged fruits.
- Camcorder also installed at the front and back of this machine to helps user to visualize the location. The camera is installed with video recorder so user can record the video data.
- Besides that, for safety measures, motion sensor is installed at front and back of this machine to alert the user on any barriers along the ways.
- Load weight sensor is installed below the container to determine the weight of fruits inside the container and the maximum limits for weight is 40kg.
- Apart from that, we can control this machine from smartphone using “Fruity Control” applications.

3.2 CLASSIFICATION OF NPD

There are two classification of new product development; it is either completely new product or improvement on existing product.

- The selected product in this project is categorized in completely new product and still in research development. In existing market, the prototype is built to test on the usage before launch.
- The existing fruit picker in the market is less convenient as compared to new Fruit Picker because some of it is hard to tighten and loosen the pole and might not be suitable for small fruits. Besides, some of the pole material is soft and pole tends to curve lead to damage (Top5 Reviews, n.d).