'I admit that had read this thesis and in my opinion this thesis was satisfied from the aspect of scope and quality for the purpose to be awarded Bachelor of Mechanical Engineering (Design and Innovation)'

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FEASIBILITY STUDY AND DESIGN DEVELOPMENT ON AUTOMATIC FEEDER'S MECHANISM FOR GOAT BREEDING

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This report is submitted in accordance with requirement for the
Bachelor Degree of Mechanical Engineering (Design & Innovation)

Faculty of Mechanical Engineering
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APRIL 2010

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STUDENT DECLARATION

I declare that this final year project report entitled “Feasibility study and design development on Automatic Feeder’s Mechanism for goat breeding” is my own work except as cited in the reference.

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DEDICATION

For my beloved mom and dad

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ACKNOWLEDGEMENT

By the name of ALLAH, the Most Gracious and Most Merciful

Due to completion of this final year project (1) report writing, I am deeply indebted to my respected supervisors, Mr. Masjuri Bin Musa of Universiti Teknikal Malaysia Melaka (UTeM) for the encouragement, motivation, constructive criticism and beneficial guidance which led me through this period. I would also like to thank Mr. Nazri Bin Md Daud as a coordinator of FYP for giving me an opportunity and continuous guidance during finishing the project.

Deep gratitude goes to multitude of my colleagues and UTeM staff who have contributed their aid in some manner, especially Mechanical Engineering Faculty staff. Not to forgot, all goat farmer shelf that have given full co-operation during the research process.

Lastly, I would like to take this opportunity to thank everyone who involved directly or indirectly during this process on completing this project. Only ALLAH S.W.T could bestow all of you with His bless and kindness, handsomely reward for your contributions.

Thank you

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ABSTRACT

As to complete the course of Bachelor's (Hons) Mechanical Engineering, this PSM (Projek Sarjana Muda) is one of the requirement. It is one of the subjects that offered by Mechanical Engineering Faculty (FKM) to all final year students. This project was done individual and supervised by a FKM's lecturer. This PSM was one of the condition of UteM to award student degree. This purpose of the project is to create technical research for undergraduate students which have high potential in technical paper publication. This study is aimed to design and analyse a Automatic goat feeder's. Two method will be used to carry out this study is analytical and simulation method. Study were made considering goat features, goat shed condition, his nutrition and types of automatic feeder that have been in market earlier. Considering all factor, some concepts were created by using several methods. Between that method is Morphology Chart. Morphology method is use to generate the concepts. After several concept created, concept superlative will selected through screening and scoring method, where concept valuation depend on several factor such as ergonomics, aesthetic etc. After getting the best concept of screening and scoring methods, detailed studies have been done in designing and developing the concept was selected and further analysis is performed to obtain the safety factor for each mechanism used in the project of automatic goat feeders.

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ABSTRAK

Sebagai memenuhi kursus Ijazah Sarjana Muda (Kepujian) Kejuruteraan Mekanikal, PSM (Projek Sarjana Muda) adalah satu kemestian bagi semua pelajar. Ia merupakan salah satu matapelajaran yang ditawarkan oleh Fakulti Kejuruteraan Mekanikal (FKM) untuk semua pelajar tahun akhir. Projek ini dilakukan secara individu dan diselia oleh pensyarah FKM. Projek Sarjana Muda ini juga adalah salah satu syarat UTeM untuk penganugerahan ijazah kepada pelajar. Projek ini adalah bertujuan mewujudkan penyelidikan teknikal untuk pelajar prasarjana yang mempunyai potensi besar dalam penerbitan kertas teknikal. Kajian ini adalah bertujuan untuk merekabentuk dan menganalisis sebuah alat penyuap makanan kambing secara automatik. Dua kaedah akan digunakan untuk menjalankan kajian ini adalah kaedah analitikal dan kaedah simulasi. Kajian telah dibuat dengan mengambil kira ciri-ciri kambing, keadaan kandang, pemakanannya serta jenis-jenis alat penyuap automatik yang telah ada di pasaran. Dengan mengambil kira segala faktor, beberapa konsep telah dicipta dengan mengunakan beberapa kaedah. Antara kaedah tersebut adalah Carta Morfologi. Daripada kaedah carta morfologi idea-idea tercetus dalam menghasilkan beberapa konsep. Selepas beberapa konsep tercipta, konsep yang yang terbaik akan dipilih melalui kaedah pemeriksaan dan pemarkahan, di mana penilaian sesebuah konsep bergantung kepada beberapa faktor seperti ergonomik, aestatik dan sebagainya. Selepas mendapat konsep terbaik daripada kaedah pemeriksaan dan pemarkahan, kajian terperinci telah dilakukan dengan merekabentuk dan membangunkan konsep yang telah dipilh dan seterusnya analisa dibuat untuk mendapatkan faktor keselamatan bagi setiap mekanisma yang digunakan dalam projek penyuap makanan automatik kambing ini.

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LIST OF SYMBOLS, ABBREVIATION & TERMINOLOGY

OPF	=	Oil Palm Frond
PKE	=	Palm Kernell Expeller
DFA	=	Design for Analysis
DFM	=	Design for Manufacturing
PDS	=	Product Design Specification
PLC	=	Programmable Logic Control
QFD	=	Quality Function Deployment

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CHAPTER 1

INTRODUCTION

1.1 General

Goats come in many different types, sizes, colors and breeds, and each of these has their own specific characteristics. In recent years, the goat has received considerable attention in the world and has become the main component in many livestock animal improvement programs in less developed countries. This interest stems from the increase in the worldwide demand for goat meat and from the adaptability, productivity and carcass quality of the goat.

New Zealand has a large population of native goats which roam unrestrained through the wooded hill country and mountain scrubland of both islands. These goats derive from the original imports of British milch goats introduced in the late eighteenth century to provide sustenance for whalers and sealers prior to New Zealand's colonization. Over time they have been supplemented by escaping domestic goats and farmed goats turned loose into unproductive scrubland during times of agricultural adversity, particularly the depressions of the 1890's and 1930's.

Although our world fast developing in technology, there is still little matter do not get technology touch such as food offering process to livestock goat. Nowadays, goat farmer shelf still uses manpower to feed the goat. Therefore, the usage of automatic feeder’s mechanism will accelerate the speed off food offering process and can reduce manpower cost.

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Whether they not able to check on their goat several times a day, or goat farmer simply want to make sure that he is not left wanting, these feeders make sure their goat doesn't miss meal time. Their goat is happy, knowing that his scheduled meal will be there on time and they have the peace of mind knowing that their goat is well fed and taken care of.

1.2 Problem Statement

Although our world fast developing in technology, there is still little matter do not get technology touch such as food offering process to livestock goat. Nowadays, goat farmer shelf still uses manpower to feed the goat. With punitive food for goat cost was increase, there was an effort were underway to find alternative. Beside grass grant and leaves, grant palette able to ease burden especially to farmer which had no big area for grass crop or farmer which had no enough labor force to work grass crop area. Palette from OPF (Oil Palm Frond) can be made alternative material to feed the goat. Apart from that there are several problems again faced by goat farmer shelf such as and revealed the problem in the chart 1.1 below:

- Time to feed goat was haphazard nicely.
- Require lot of work force if having a lot of goat.
- Food feeders damaged and often need tertiary care.
- The automatic feeder for goat was too expensive.

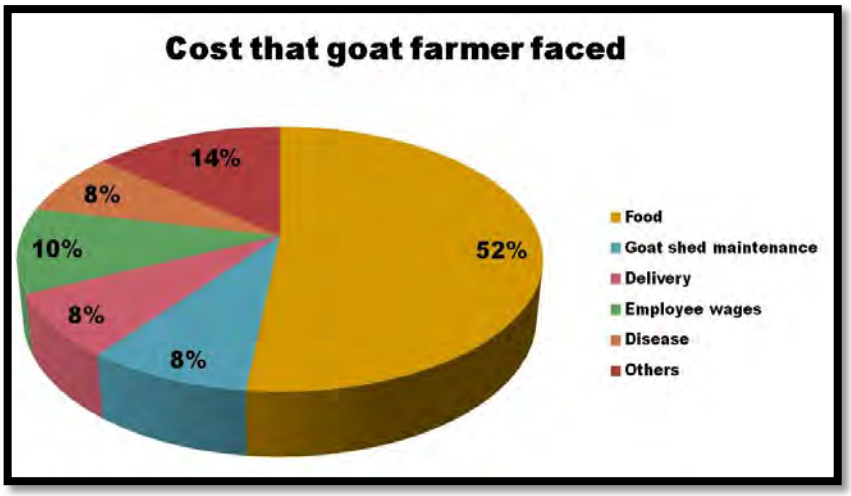

Chart 1.1: Cost for goat farmer

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1.3 Objective

The goals of this proposed project title are:

- To study the goat nutrition behavior.
- To study the problem that goat farmer faced.
- To study the type of food that good for goat breeding.
- To design an automatic feeder's mechanism for goat breeding.
- To do analysis on automatic feeder's mechanism.

1.4 Scope

For the scope of this project in encircle:

- Literature study on automatic feeder's mechanism for goat breeding.
- Design the automatic feeder's mechanism for goat.
- Analyze the structure and capability of goat automatic feeder's mechanism.

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1.5 FLOW CHART

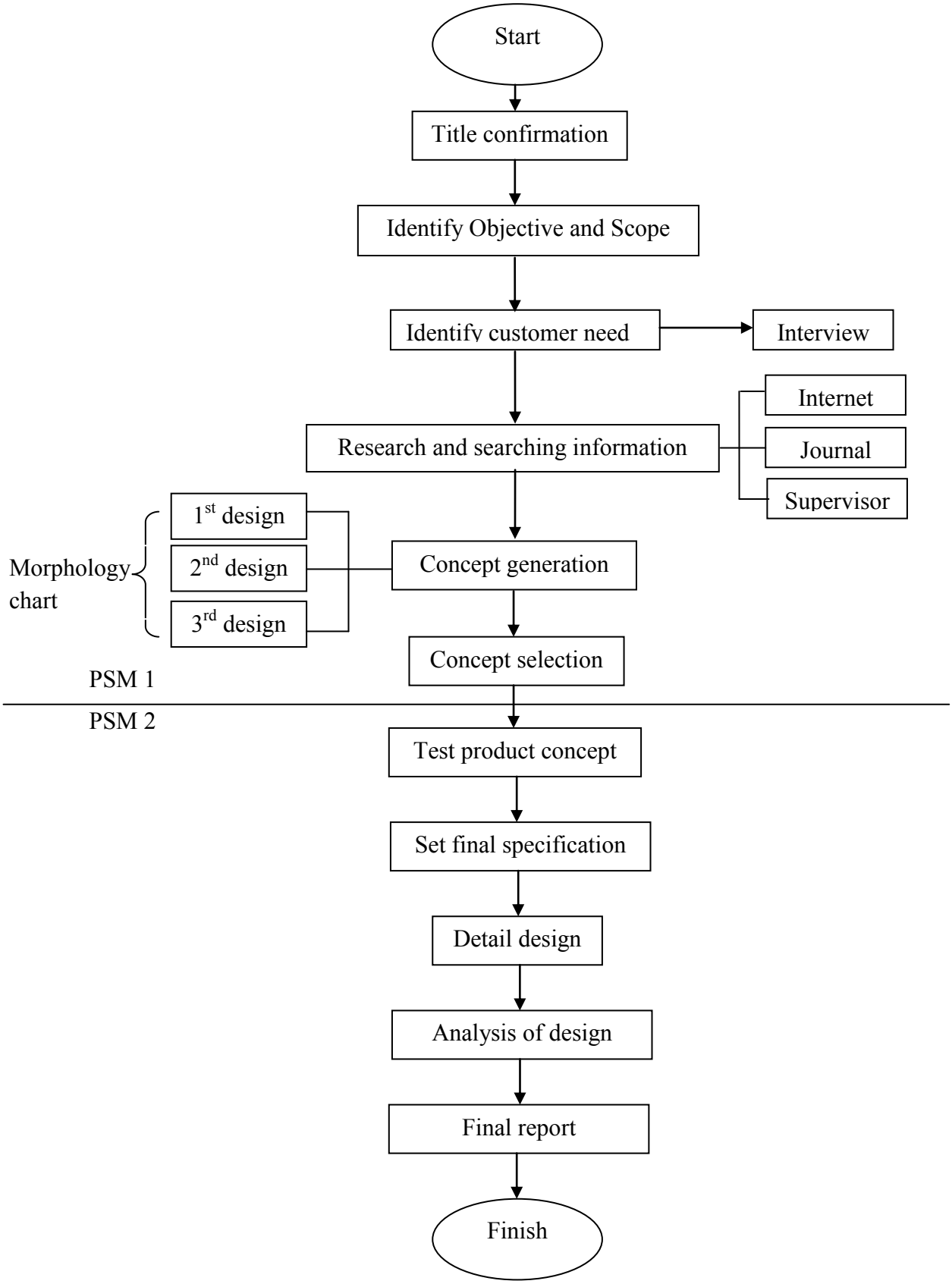

Chart 1.2: Flow Chart

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