UNIVERSITI TEKNOLOGI MARA

FACULTY OF MECHANICAL ENGINEERING

DIPLOMA IN MECHANICAL ENGINEERING (EM110)

MECHANICAL ENGINEERING DESIGN (MEC332)

PEELER MACHINE

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ACKNOWLEDGEMENT

First of all,
grateful to the Allah for without his providence and bless
in granting usgood health and strength, we would not be able to complete this project proposal on time.

Moreover,
We would like to thank our Design course"s lecturer,
Sir Mohd Noor halmy Bin Abdul Latif and our supervisor, Sir Ahmad Najmi Bin Rusli for her guidance in accomplishing the task given to us.

We also would like to acknowledge all the organization which kindly give us information about the introduction to business is all about.

Last but not the least;
we would like to thank our family and friends for the moral and financial support.

After that,
thanks to the group members for all the cooperation and hardwork. Hope that this hard work is blessed and we can succeed in the future.

ABSTRACT

The objective of this project was to study on designing, fabricating and evaluating the Auto Fruit Peeler Machine (AFPM). The new design of this AFPM is very suitable for domestic use because of small size, safety features and lightweight, compared with the similar products that are driven by a motor. Few considerations have been take into establish the appropriate criteria for this AFPM. Among them is the size, portability, and energy-saving. A safety feature is the peeling process is in the container where the user does not contact with the blade. This is a useful machine to automatically peel the fruits. The speed rotation of the fruit can be controlled for energy saving 0depend on the soft and hard of the fruit skin surface. Peeler products in the current market, is only a hand peeler apparatus. We believe this product can penetrate the market, because it easy to use, added with safety features.

2.1 DESIGN MARKET ANALYSIS

2.1.1 General need for product

It is important for a product to have main component in a product. To make the machine portable, it is important to decrease the number of component in order to reduce the weight of the product. The main design usually used to support a huge load or number of component. For this portable machine, it is not required tire to make it move. The machine must be lift manually, and from that, the weight of the machine must be small in weight. The product will need a few components. The frame, which is made by stainless steel is use to hold other component inside. It is motor powered that has capacitor of 0.6 micro farad in order to rotate the pineapple fast enough to make the knife cut the pineapple. Knife or blade is made of stainless steel. Clamping unit, to hold the pineapple tightly when it rotates and the component used is nut. The mechanical element that inserted in the clamping unit is power screw, spring to reduce the inertia of the knife when it falling down, and motor. There are four vertical rod use to hold the knife and an extension that made of wood to move the knife up and down.

2.1.2 Description and estimation of market size

From the source and surveillance made, we have found out that 3 place in Johor that have become our target market. Our target market is the pineapple businessmen that have operated in Johor for more than 5 years and have their own workers and store. The locations that are targeted are Pontian, Tampoi and Simpang Renggam. The total businessman that runs this business in Johor is 20 people which have their own factory in processing the pineapple. The price estimated for 1 machine is RM300.

Number of customer or factory = 20

Total target sale for 1 factory or customer= 10 unit

Price of 1 unit= RM 300

Total sale of 1 factory= RM 300 × 10 unit

=RM 3000

Total sale of 20 factory= RM 3000 × 20 factory

= RM 60000

Total target market= 10 unit × 20 factory

= 200 unit