

DESIGN AND DEVELOPMENT OF MILK POWDER
DISPENSER

by

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Report submitted in partial fulfillment
of the requirements for the degree
of Bachelor of Product Design Engineering



APRIL 2010

ACKNOWLEDGEMENT

After few months of hard work and dedication, finally the final year project had been completed on schedule. I would like to take this opportunity to express my appreciation to the following people who has guided and help me in accomplishing this project.

First I would like to thank my supervisor Pn Umami Noor Nazahiah Bt Abdullah, for her valuable advices. She has given me a lot of suggestion and explanation when I was facing some doubts when planning my research work. Besides, she also shows me a correct way for preparing final year report. Her passion, expert and constructive comment have also helped me a lot in completing this project.

I would like to express a special thank to all the technicians from laboratory. Without their help, I cannot finish my experiment work on time. They are always helpful, friendly and giving fully support to my work.

© Finally, I would like to thank my family members and friends for their concern support, encouragement and financial support. This project would not be successful if without any help from above mentioned people.

ABSTRACT

The trend of selling milk powder in aluminium packaging becomes a trend nowadays due to decrease the company cost. Therefore, the consumers have to buy an extra container or dispenser to keep the milk powder after opening the packaging. The most popular is the plastic open-top container comes with its plastic cover. There are many disadvantages of using this kind of dispenser which are easily exposed to the bacteria due to dip up the powder, messy, wrong measurement and the container itself easily damages. Therefore, this project is carried out to design the milk powder dispenser in order to avoid milk powder contamination and design the dispense measurement system that suitable with multi-ages of infants. Due to the achieve the objectives of the project, some methods have been carried out such as questionnaire, to survey what are the criteria customers need for a milk powder dispenser. After that, the concept generation have to undergo followed by concept selection and concept evaluation to find out which is the most suitable design for this milk powder dispenser. The end of the project, a premeasured milk powder dispenser is manage to design with which while dispensing the milk powder the milk powder is without any contamination occurred. The volume of each scoop is calculated by using principle of specific weight and the size of the scoops is calculated with the formula of conical frustum volume and cylinder volume. This product is recommended to be automatic by using PLC software which the user just need to press a button the amount of milk powder they needed will fill in the milk bottle.

ABSTRAK

Kecenderungan jualan susu tepung dalam bungkusan aluminium menjadi trend saat ini kerana mengurangkan kos syarikat. Oleh kerana itu, pelanggan harus membeli sebuah bekas tambahan atau dispenser untuk menjaga susu tepung selepas membuka bungkusan. Yang paling popular adalah bekas terbuka atas plastik dilengkapi dengan penutup plastik. Terdapat banyak kelemahan menggunakan jenis dispenser yang mudah terkena bakteria kerana merendam sampai serbuk, berantakan, pengukuran salah dan bekas itu sendiri dengan mudah kerosakan. Oleh kerana itu, projek ini dilakukan untuk desain dispenser susu bubuk untuk mengelakkan pencemaran susu bubuk dan desain yang mengeluarkan sistem pengukuran yang sesuai dengan pelbagai usia bayi. Demi mencapai tujuan dari projek ini, beberapa kaedah telah dilakukan seperti memberi kertas penyolalan, untuk kajian apa saja kriteria keperluan pelanggan untuk dispenser susu tepung. Setelah itu, generasi konsep perlu dijalankan, diikuti dengan pemilihan konsep dan penilaian konsep mengetahui adalah rekaan paling sesuai untuk ini dispenser susu bubuk. Akhir projek, dispenser susu praukur yang sementara mengeluarkan susu tepung tanpa pencemaran berlaku berjaya direkabentuk. Rekabentuk dispenser susu ini boleh dipertingkatkan lagi dengan mengubahnya kepada automatik dengan menggunakan PLC, maka pengguna hanya perlu menekan kepada susu tepung yang diperlukan lalu dispenser itu akan mengeluarkan susu tepung tersebut kedalam botol.

APPROVAL AND DECLARATION SHEET

This project report titled “Design and Development of Milk Powder Dispenser” was prepared and submitted by Kee Shao Han (Matrix Number: 061120220) and has been found satisfactory in terms of scope, quality and presentation as partial fulfillment of the requirement for the Bachelor of Engineering (Product Design Engineering) in University Malaysia Perlis (UniMAP).

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April 2010

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