



PAINT MIXER MACHINE

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POLITEKNIK SEBERANG PERAI

SESI JUN 2017

SUBMISSION OF FINAL REPORT DECLARATION

DECLARATION FROM STUDENTS (GROUP LEADER)

PLEASES TICK (//)

We have made all the necessary amendments based on comments and suggestions given by the supervisor and panel.

Format for report writing is in accordance with the format guidelines.

We have the approval of the report from the supervisor.

This report is the property of Politeknik Seberang Perai.

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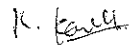
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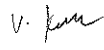
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We recognize this work is the work of our own except each of which we have explained the
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PROJECT SUPERVISOR VERIFICATION

Project report entitled "Paint Mixer Machine" has been submitted, reviewed, and certified to meet the requirements and need of project that have been set for completion

Diploma in Mechanical Engineering.

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Thankful to God for his bounty and we could complete our review of this perfectly.

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ABSTRACT

The "Paint Mixer Machine" is a project which can take care of human health, energy and time for who work at factory. This project not just easy to use but also give a lot of contribution to other field, such as construction, engineering, education, medical and others. Why we need to create and build the paint mixer? Nowadays, most of the people are busy to earn money and chasing comfortable. A lot of time and energy will be waste if we mix the paint by using the old method, which is using our hand and a piece of wood stick. Therefore, this machine was created to save our time and energy during we mix the paint.

ABSTRAK

"Paint Mixer Machine" ini merupakan satu projek yang dilaksanakan bertujuan untuk menjaga kesihatan yang bekerja dalam kilang disamping dapat membantu mengurangkan tenaga manusia serta memendekkan masa untuk mengacau cat. Projek ini bukan sahaja senang digunakan manakala memberi sumbangan kepada pelbagai bidang, sebagai contoh bidang pembinaan, kejuruteraan, pendidikan, perubatan dan sebagainya. Mengapakan kita mereka dan mencipta mesin ini ? Pada era globalisasi ini, masyarakat telah sibuk mengejar kemewahan dan keselesaan. Banyak masa dan tenaga akan dibazirkan jika kita mengacau cat dengan menggunakan teknik lama, iaitu menggunakan tangan dan kayu. Oleh itu, mesin ini dicipta supaya dapat menjimatkan masa dan tenaga kita semasa mengacau cat.

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CHAPTER 1: INTRODUCTION

1.0 Introduction

The final semester project aims to give experience for students to become more creative and innovative in producing a product according to current demands in carrying, learning and gaining knowledge about mechanical engineering in polytechnic. To meet the requirements we have to produce a project that could mix paint. Our project is called a paint mixer machine.

The idea to create this project comes from the thinking of our group members together with the help of our supervisor, PUAN FAUZUREEN BINTI FUDZIL. With the project we design users can understand the use of paint mixer machine.

As we can see that time and energy are very important in every person of our daily life. But the world is getting more advanced as the human definition is getting more. For example, industrial working has to include workers who have high compatibility. Energy is a basic requirement for every human individual in an industrial working.

Our project aim is to design and developed a machine that can mix paint without any manpower during the process of mixing.

1 Background of Problem

There are many problems faced by paint dealers and painting workers when it comes to painting works. These problems are manageable so if this problem can be significantly reduced, the workers are able to carry out their works with less stress.

The main problem faced by the paint workers are the duration of the paint mixing process and uses a lot of man power for this process. These affect the time duration for the work to be completed.

This is because some paints are hard to be mixed and also there will be more paints to be mixed. This requires more man power to obtain the process. They even sometimes pour water which is over limit and affects the quality of the paint or the design. This problem affects the workers and the dealers running on a low profit margin due to their cost of painting.

More than that, some workers use hand drill where the tip of the drill is welded to a metal rod with a small blade to mix the paint. This affects the cost of expansion because during the mixing, some of the paint get into the drill and gives damage to the drill. Secondly, it also takes to waste some paint during that process.

Due to this problem, paint workers do not use these techniques anymore because they are not making profit. Most workers just don't have that facility on their jobs. They mostly suffer from this problem especially if their source of income comes from only painting jobs.

Problem Statement

Problem Statement is a concise description of the issues that need to be addressed by a problem solving team and should be presented of them or created by them before they try to solve the problem. When bringing together a team to achieve a particular purpose provide them with a problem statement.

Based on the problem we are creating this Paint Mixer Machine because it is important in our country economy. These days in painting industries, a majority of painters are mixing paint manually by using a wooden stick or by using own made devises.

The paint mixers need these kind of projects to reduce their work load and also to work more efficient and safety without bringing risk of injury to them. For an example every time when workers are going to mix a certain paint the risk them self from creating their own devises such making a mixer using hand drill and causing electrocuted and cause death. Mainly some hand drills are not compatible for other uses.

Some group of worker hire some equipment such as the paint mixer machine which is big and hard to move from place to place. It will cost a fortune because of the expenses needed to buy such devise.

With the use of our paint mixer machine we are able to overcome this problem easily.

3 Objective

The objective of the Paint Mixer Machine is:

-) To Mix paint easier.
-) To save time.
-) Reduce the effort of energy

4 Scope of Project

Scope of project is an important element to make sure the projects can be finished like how the schedule runs. So scope of projects has to be followed to prevent the projects from running away from the objectives.

Scope of our Paint Mixer Machine is:

- 1) Design a Machine that mix paint without wasting effort
- 2) Save time and energy

5 Definition of terms

The terms that can be describe our projects in this study are:

Forward-looking

Planning for or anticipating possible future events, conditions and progressive

Innovative

Referring to innovate or introduce something new of different characterized by innovation. A new idea, device, or method or the act or process of introducing new ideas, devices or methods

6 Conclusion

The production of paint mixer machine is to reduce hardship of painting workers to overcome the problems that they face every day during working. This is also to reduce chance of death or injuries. In chapter one, our group have made a study on several problems faced by painting workers. So our group has decided to make this projects to overcome it. In the following chapter, our group will attribute the arisen problem by using appropriate theories, concept and research.

CHAPTER 2: LITERATURE REVIEW

2.0 INTRODUCTION

From this chapter, we had discusses about the different types of former mixer machines from the articles, journals, website and conference paper that related to our project. The research of this products that have been previously develop by several institution and companies. As we know, this project was available in the market nowadays. Anyhow, we have made some search all about the aspects of our project for the production of the 'Paint Mixer Machine'.

2.0 ANALYZE THE EXISTING DESIGN

In this chapter, the researcher had described about the literature review and the ways to produce this project previously. The study was conducted on several types of paint mixer machine project before. Besides, there is a study of the components used in this project. Before doing a study on this project, there is a different types and functions for each project that has been made. There were some different among the machine which the capacity, materials used, speed and power supplied. Although there are differences in the way of functional improvement, many of them have similar uses.

Twin Shaft Machine is a multipurpose twin-shaft mixer with 1000 liters capacity is hydraulically elevated and suitable for the production of Trowel, Spandex, Textured, Emulsion, Moss, Glue and Wood finish. This machine perform all the necessary things about production. It powered by two electric motors:

1. 30H.P. electric motor which runs at high speed and controls the shaft.

2. 15 H.P. electric motor which drives the anchor shaft at slow speed.

3. 4 H.P. electric motor for drive of hydraulic purposes, without which the machine does not run-up.

This machine is specially designed for high viscous products. High speed impeller disperses while the slow speed keeps the product flowing with resulting reduction time by 30 to 50%.



Twin shaft Paint Mixer Machine

A multipurpose twin shaft mixer powered by two electric motors.

Hydraulic Mixer Machine 1000 litres capacity is a jumbo high speed disperser suitable for the production of Emulsion, Textured and gloss paints. This machine is powered by 40H.P. electric motor. It also has a 3H.P. electric motor that drives the hydraulic system.



Hydraulic Paint mixer Machine (1000 liters capacity)

Standard high speed Disperser for production of Emulsion, Gloss & Textured Paints.



A standard high speed disperser (1000 liters capacity)

Suitable for production of Emulsion &Gloss. Powered by 30HP electric motor and 3HP for hydraulic.

Model Mixing Machine 250 litres jacketed pot is powered by 15H.P.electric motor with a reduction gear unit. It is suitable for the production of inks, gloss paints and can also be used for the grinding of pigments.

These machines are made with different methods, that is, gear and electric motors are separate. Some have double tanks, one for water, and the other for paint. The one for water is for the purpose of cooling the pot.



A model mixing machine (250 liters jacketed pot)

Suitable for production of ink, gloss paint & can also be used for grinding of pigments.



flour **Milling Machine** powered by 7.5 electric motor. This machine is suitable for the milling of flour for bread, cake chin-chin meat-pie etc.



Double Head Attractor 2 x 250 liters jacketed pots is powered by 10H.P. gear motor. The pot is removable at any point in time by losing shaft. This machine has two shafts, two tanks. One tank dedicated for white product, and the other one for colors. This machine is suitable for the grinding of pigments and the production of gloss paints.



Lab Mixing Machine powered by 2H.P. to 3 H.P. electric motors. This Laboratory disperser is suitable for the production of various samples such as: emulsion paint and gloss.

These machines are made of different methods. As the one below using hand wining for the purpose of changing pot without losing its shaft.



Lab Mixing Machine (non-hydraulic) is a laboratory disperser for the production of various samples of paints both emulsion and gloss paints.

This machine can also be made of various speed (low and high speed). Unlike the hydraulic, to remove the pot you have to lose the shaft first.



Single Phase Model Mixing Machine 400 liters capacity, powered by 7.5 electric motor is suitable for the production emulsion. This machine is fabricated for the purpose of light. Even when you have single line. You could still be able to produce.

There are two single phase: One is permanent and the other one is removable.