

## Multiextract Machine

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### ABSTRACT:

Extraction of oil from coconut either by dry process or wet process could be more difficult during rainy seasons and for those who are not comfortable with conventional method of oil extraction process, we have developed a new machine without making use of sun heat for 10-15 days for drying coconut. Hence this compact model has been developed to eliminate disadvantage of drying mature coconut in the sun for more than a week. Here, instead of drying mature coconut for dehumidification, we made use of heater and blowers to dehumidify the coconut moisture. As the title

reveals that this will be in compact structure so that it can be portable and it could be used anywhere, since it has more commercial value. In this machine we can also extract coconut milk by put the fresh coconut directly into the screw press.

In this report, we will be developing a compact machine to overcome the disadvantages of conventional model with simple mechanisms.

**Keywords : oil and milk extraction, compact model, simple mechanism on oil extractions.**

## INTRODUCTION

A milk extractor is a device used to extract milk from the coconut. Coconut cream is the processed milk extracted from fresh matured coconuts. Sweetened coconut milk is served on its own as a drink during spring and summer. It is made by adding sugar and evaporated or fresh milk during the process of preparing the coconut milk. Coconut milk made from water that is then mixed with fresh or evaporated milk in a 1:1 ratio and a spoon of condensed milk or sugar for each cup. They are served chilled. It is also fine to drink raw by itself, or reduced with plain water.

One of these products is coconut milk which is extracted from mature coconut meat. But then coconut milk extraction is a difficult process and can prove to be untidy at times. Efforts are in the works to improve the process

of coconut milk extraction. Many attempts have been done to increase the efficiency of the early prototypes and until now, no high efficiency models have been made regarding the design of machines for extracting coconut milk.

## LITERATURE REVIEW

Coconut milk is a sweet, milky white cooking base derived from the meat of a mature coconut. The color and rich taste of the milk can be attributed to the high oil content and sugars. It is an instant product, which can either be used directly or diluted with water to make various preparations such as sweets and desserts. It can also be used in the manufacture of bakery products and for flavoring food stuffs. Processed and packed coconut cream has a shelf life of six months and once opened it

should be stored in refrigerator for subsequent use.

Coconut milk and cream are extracted from mature coconut meat. The meat is ground or grated then squeezed to extract the milk or cream. There is a special machine for grating mature coconut meat in most Asian markets but in places where no such service is available, cooks buy the coconut whole, split the husk at home and grind the meat in the blender. In the Philippines, coconut milk extraction is primarily done manually. Coconut meat is first obtained from the coconut by using either a mechanical or a manual shredder. Water is then added to the coconut meat and then the mixture is squeezed either by hand or through a mesh to extract the milk. The need for efficient and large scale processing is due to the increasing demand for processed coconut

milk thus the need for mechanical coconut milk extractors.

A screw, or bolt, is a type of fastener characterized by a helical ridge wrapped around a cylinder. Some screw threads are designed to mat with a complementary thread often in the form of a nut or an object that has the internal thread formed into it. Other screw threads are designed to cut a helical groove in a softer material as the screw is inserted. The most common uses of screws are to hold objects together and to position objects.

A coconut milk extractor is a machine used to reduce the manual extraction of coconut milk. It also aims to increase the volume of milk produced. The more milk produced, the higher is the efficiency of the whole process. Thus to increase the efficiency of coconut milk extraction, mechanization is introduced. Now

a days, various coconut milk extracting machines are available in the market.

## **AGRICULTURE:**

Agriculture was developed at least 10,000 years ago, and it has undergone significant developments since the time of the earliest cultivation. Independent development of agriculture is also believed to have occurred in northern and southern China, Africa's Sahel, New Guinea and several regions of the Americas. Agricultural practices such as irrigation, crop rotation, fertilizers, and pesticides were developed long ago but have made great strides in the past century. The Haber-Bosch method for synthesizing ammonium nitrate represented a major breakthrough

and allowed crop yields to overcome previous constraints. In the past century, agriculture has been characterized by enhanced productivity, the substitution of human labor for synthetic fertilizers and pesticides, selective breeding, and mechanization.

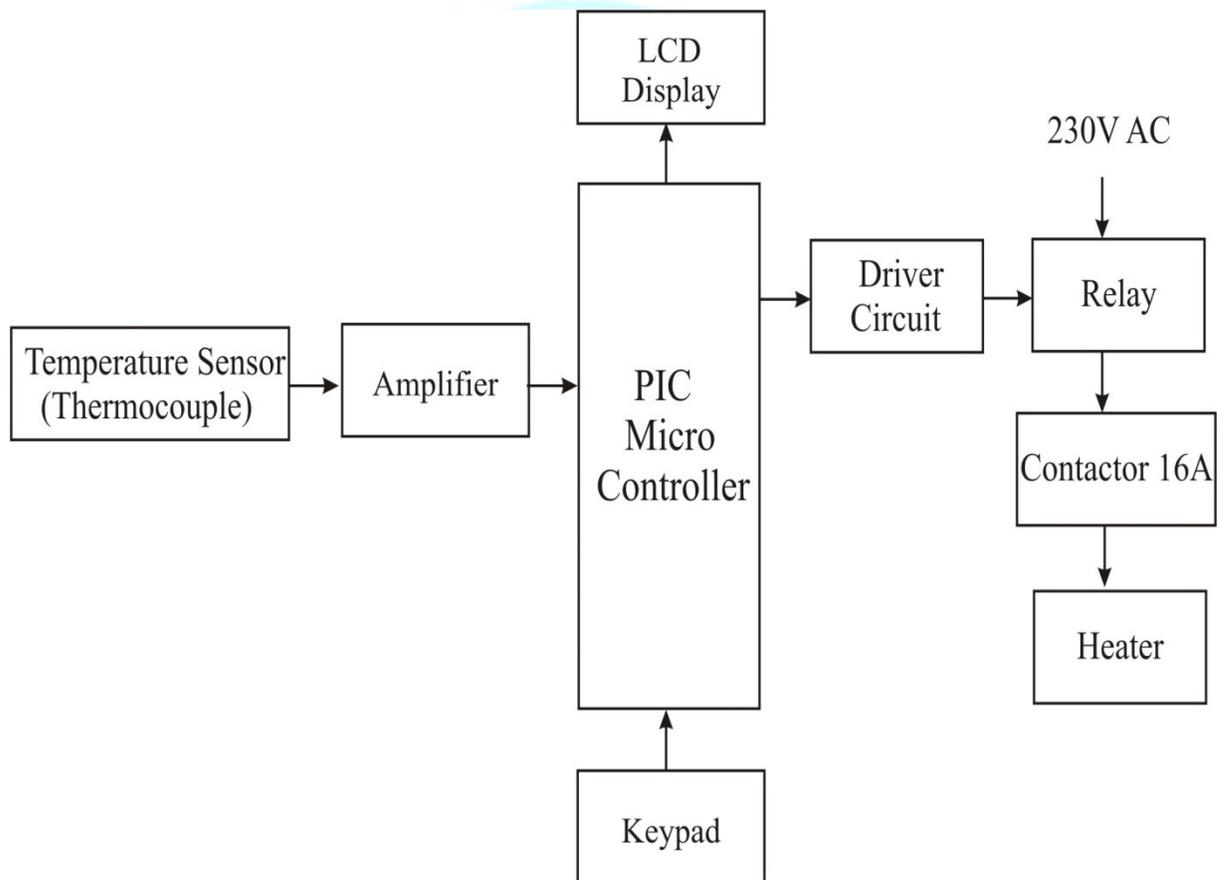
## **DESIGN AND DRAWING**

The coconut milk extractor consists of the following components to full fill the requirements of complete operation of the machine.

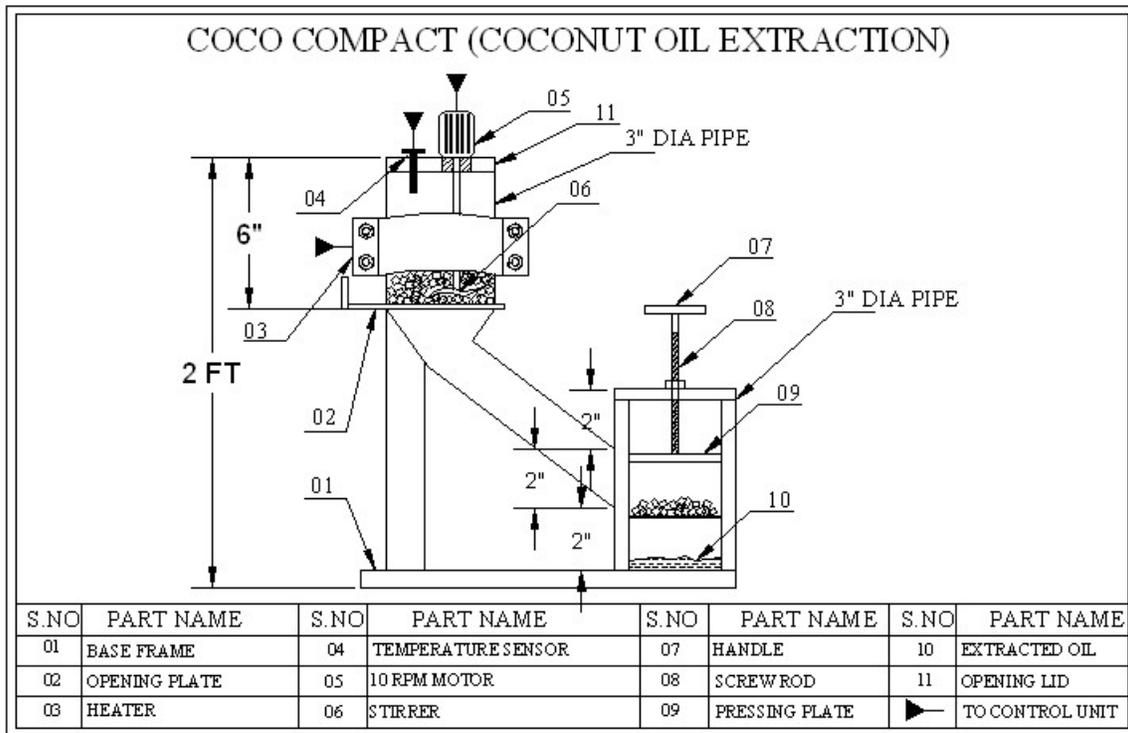
- Heater
- Temperature sensor
- Motor
- Lead screw
- Amplifier
- Stirrer

## DRAWING

### BLOCK DIAGRAM:



## DRAWING FOR COCO COMPACT (COCONUT OIL EXTRACTION)



PRDGG

## WORKING PRINCIPLE

This project is used for coconut oil extraction. The motor is connected with the stirrer. For heating purpose a heater is placed. Temperature sensor senses the temperature and switch on or off the heater with help of control unit. An opening plate is placed to pass the heated coconut to the pressing area. In the pressing area a plate is connected to lead screw and handle. Lead screw is a device used for converting the rotary motion to linear motion. A pressing area is provided for placing the coconuts, which are to be pressed. As the lead screw is rotated further the coconut will be completely pressed and the coconut's oil is extracted. The extracted oil will flow through the path provided and will be collected. Thus using this machine, the coconut's oil will be extracted.

## MERITS AND

## DEMERIT

### MERITS

- Ease in operation
- Improves productivity by extracting the oil completely
- Low maintenance is required as simple mechanism is used

### DEMERIT

Continuous process will result in human fatigue.

## APPLICATIONS

It can be used in places like hotels, bakeries and wherever coconut oil is extracted.

Made an impressing task in canteens, hotels and bakeries. It is very usefully for the workers.

## CONCLUSION

This research has provided us an excellent opportunity and experience, to use our limited knowledge. We gained a lot of practical knowledge regarding, planning, purchasing, assembling and machining while doing this project. We feel that the project work is a good solution to bridge the gates between institution and industries.

We are proud that we have completed the work with the limited time successfully. MULTIEXTRACT MACHINE – COMPACT MODEL is working with satisfactory conditions. We are able to understand difficulties

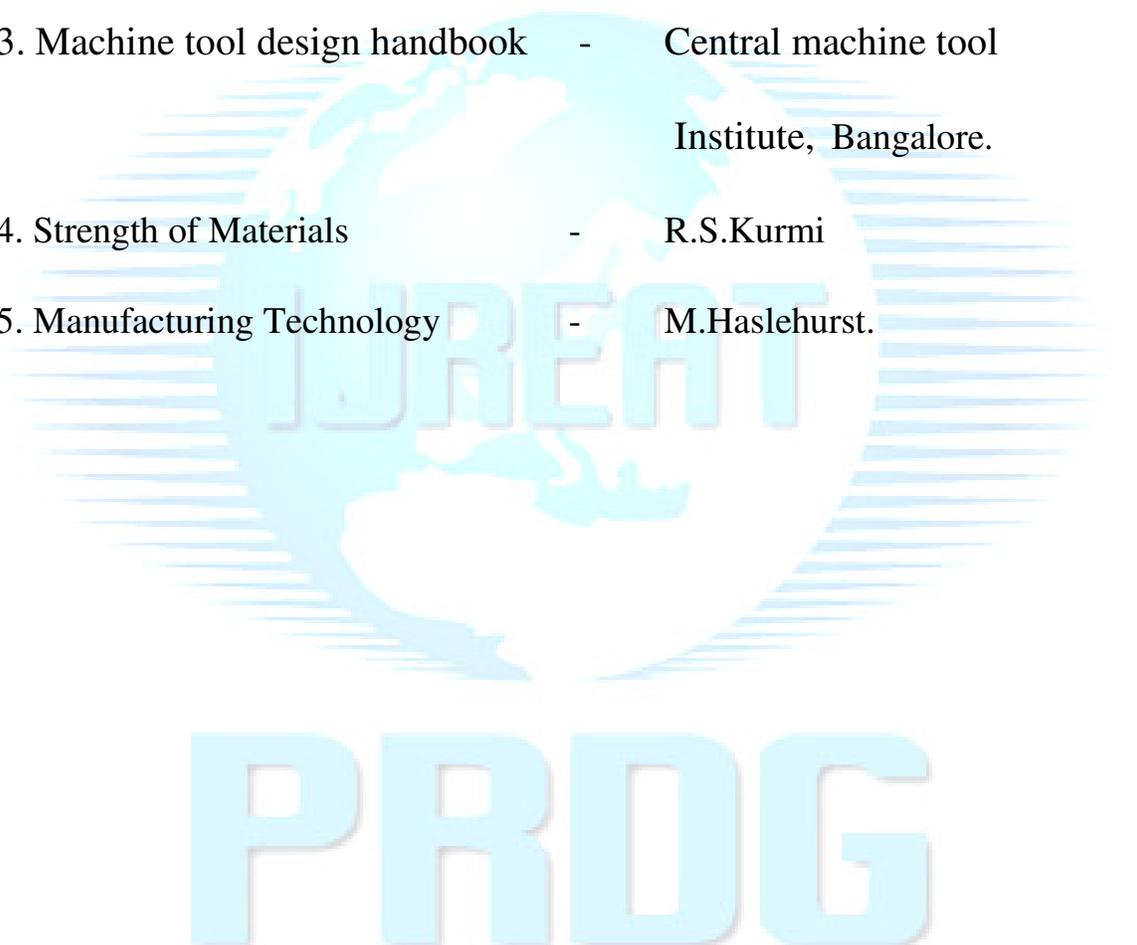
in the designing, specification needed and also quality. We have done to our ability and skill making maximum use of available facilities. On concluding this, since multiextract machine is very much useful in reducing a considerable amount of loss in oil extraction and also recovering oil during rainy seasons.

The project carried out by us made an impressive task in canteens, hotels and bakeries. It is very usefully for the workers.

This project has also reduced the cost involved in the concern. Project has been designed to perform the entire requirement task which has also been provided.

## BIBLIOGRAPHY

1. Design data book - P.S.G.Tech.
2. Automobile Engineering - Dr. Kirpal singh (vol- 1&2)
3. Machine tool design handbook - Central machine tool  
Institute, Bangalore.
4. Strength of Materials - R.S.Kurmi
5. Manufacturing Technology - M.Haslehurst.

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