

# Design and Fabrication of Customized Automatic Fresh Juice Vending Machine

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**Abstract** - Smart fresh juice vending machine is a machine that combines the benefits of high quality fresh fruit juice with the convenience of an automated vending machine. The freshly juice vending machine can complete actions such as automatic vending, fresh juice extraction, automatic cleaning and juice freshness preservation, and can be applied to shopping malls, supermarkets and other consumption places. This vending machine are very easy to manage as nobody has to be there to sell any goods, You need only the machine's installation and you can simply monitor its progress from afar, There are not any payment problems as the instant payment is needed to buy the items.

The operating vending machines have not overhead costs because you eliminate the need for the employees who sell the juice, there are no monthly wages and pay rolls, and there's no need for you to rent any extra work/office space.

The design and operation of the machine is such that it ensures you get premium quality 100% pure cold fresh juice 24X7.

**Key Words:** Vending Machines, Payment Gateway, Portable, Peltier module, Calibrated.

## 1. INTRODUCTION

Smart Fresh Juice Vending Machine is the new concept to sell the "Fresh Juice" to the customer without or minimum overhead cost. After each process, machine automatically cleans the system to ensure the good quality of juice for each & every vending. This vending machine can also accept orders without being touched. It allow users to purchase fresh juice only by scanning QR code from their mobile phones! This Vending machine have the mobility, They can be moved to the new places & they will continue delivering the services as usual, There is no cashier, They give the clients the free choice to purchase the fresh juice at any time of the day, You can shop for this product on a 24 hour, throughout the year. This machine is used to dispense the products to the customers without the involvement of staff or the human assistance on a 24 hour basis, The cashier is ultimately unnecessary and yet it delivers the fresh juice to customers.

## 1.1 Proposed Methodology

The utility model discloses a freshly extracted orange juice vending machine. The freshly extracted orange juice vending machine comprises a raw material cabinet, a discharge mechanism, an extraction mechanism, a cutter, a juice output mechanism and a control mechanism, wherein the discharge mechanism comprises an upper guide pipe, a lower guide pipe, an ejection block and a lifting mechanism which can drive the ejection block to move up and down; the discharge end of the upper guide pipe and the feed end of the lower guide pipe face to each other and are staggered vertically; the discharge end of the lower guide pipe and the extraction mechanism face to each other; the extraction mechanism comprises two concave die rollers with a plurality of concave ball grooves, two convex die rollers with a plurality of convex balls and a transmission mechanism which drives the rollers to synchronously rotate, and is used for extracting oranges; the cutter is installed below the junction of the two concave groove rollers; the juice output mechanism comprises a juice collection hopper, and an opening is formed below the juice collection hopper and is connected with a juice guide pipe. It acquires approx. 2-3 unit in 24 hrs. The dimensions of machine is 2\*1.5\*2.5 feet. These dimensions are selected randomly as per ease of fabrication.



Figure1: fresh juice vending machine

## 1.2 Gap Observe

Gaps available is that in earlier made machines there is a preprocessed juice available which contains added chemical and which is not conducive for health but in this machine there is a freshly prepared juice available on the instant payment.

## 2. Literature Review

- 1) In the article [1], Sylvester A. Aye et al., described that the orange juice extractor has been designed and constructed using scientific and engineering principles[1]. The juice extraction is achieved by means of small sharpened blades on a shaft which rotates with the aid of the bevel drive[1].
- 2) In the article [2], Preetilatha R et al., described that Since their introduction, Vending machines have become an increasingly important distribution channel in public and private sectors[2].An embedded based system is designed to achieve a low cost, portable and accurate system[2].
- 3) In the thesis [3], M.S. Wani et al., described that Automation was the rage of the engineering world[3].We have found from the review on the lemonade machine few drawbacks are seen such as high investment cost, additional man power, impact of environment, time consumption caused by the lemonade machine[3].
- 4) Bell, C., Pond, N., Davies, L., Francis, J., Campbell, E., & Wiggers, J. (2013). Healthier choices in an australian health service: A pre-post audit of an intervention to improve the nutritional value of foods and drinks in vending machines and food outlets. BMC Health Services Research, 13(1), 492.
- 5) GA. M. Olaniyan et al., have described that A small scale machine for extracting mango juice from mango fruit was designed, fabricated and tested [4].
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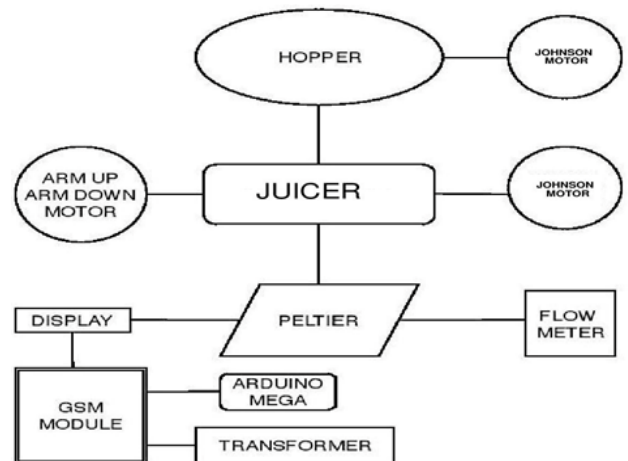


Figure2: Block digram of fresh juice vending machine

## 3. CONCLUSION

A vending machine is an automated machine that provides items such as snacks, beverages, and lottery tickets to consumers after money, a credit card, or a specially designed card is inserted into the machine. The first modern vending machines were developed in England in the early 1880s and dispensed postcards. Vending machines exist in many countries, and in more recent times, specialized vending machines that provide less common products compared to traditional vending machine items have been created.

## 4. REFERENCES

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