

Licensing and Technology Transfer Opportunity: Manipal University

Title of Technology Available: AUTOMATED FOOD PROCESSING MACHINE USING PROGRAMMABLE LOGIC CONTROLLER

Brief Description of Invention:

The device consists of three subassemblies, namely Dosamaker, Idlimaker and Rasam/Sambar maker and a grinding unit at the top. The grinding unit is filled with raw material, which is transformed into batter and stored in a container.

The dosamaker subassembly consists of an induction heater, a synchronous motor keyed to a hotplate, a batter spreader and a scraper. The batter from the container drops on top of the hot plate through a motorized ball valve wherein the spreader plate spreads the batter into a circular/elliptical formation. The batter transforms into dosa as it moves along the circumference of the hot plate until it reaches the scraper, which scrapes and discharges the dosa on to a tray.

The idlimaker subassembly consists of an induction heater, a idli cooker and a set of idli plates resting on hex-nut screwed to a threaded shaft. The threaded shaft is coupled to a stepper motor by a flexible coupling which rotates the idli plate in steps of 90 degrees so that each containment of idli plate is filled with batter by a motorized valve. The stepper motor rotation is controlled by TB6600 by means of a PLC.

The rasam maker being a simpler subassembly, compared to the above two, only consists of induction heater, a utensil (that needs to be filled with cut vegetable pieces, daal and water) and valve to transfer powdered solution into the utensil.

Brief Background of Invention:

Automated food processing devices allow users to program the activation of various types of appliances, rationalizing the time. The home culture is now evolved and in need of these structural solutions for the kitchen environment which has not evolved much in terms of automation. Hence to reduce the manual labor involved in preparation of idli and dosa, the proposed prototype completely automates the extensive process in preparation of the said product, right from grinding the raw material up to finished product along with a side dish.

Describe the final product:

- a. The prototype is modular and compact in size (3 feet x 1.75 feet x 1.75 feet). Subassemblies can be dismantled easily by even a moderately skilled person which would help in cleaning and transportation which is based on process automation. The entire machine is controlled by a PLC, which makes the system reliable and less susceptible to any kind of failure.
- b. The final prototype of the invention is shown in Figure 1 and Figure 2 below.

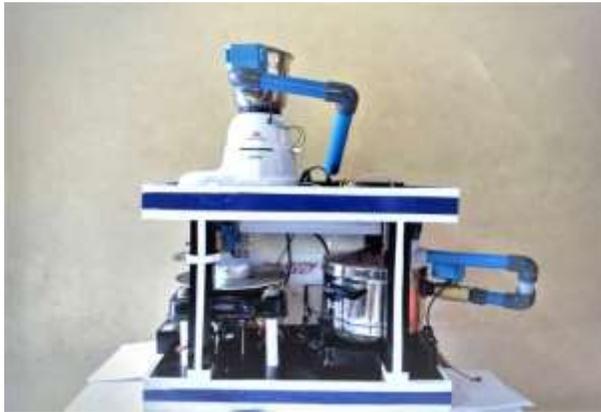


Figure 1. Final prototype of Dosa maker and Idli maker



Figure 2. Final prototype of Rasam/Sambar maker

Technological Domain (Keywords): Kitchen Automation, Dosamaker, Idlimaker, Rasam/Sambar maker

Proof of Concept: Proved by developing a prototype and demonstrating the technique and operation.

Stage of Development:

Ideation/Prototype/Advanced Prototype/Ready to Market technology

PROTOTYPE.

Provide Information on Competitors who manufacture and/or sell similar products: NA

What are the unique advantages your innovation has compared to the competition:

A few potential companies who might be interested in this technology: **M/S Kalkura (kitchens) pvt.ltd, M/S Preeti, Philiphs.**

Intellectual Property Status: Indian Patent application with number filed in (mention year)

: CBR Number : 34240

Application Number :201841045058 in the year 2018

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