DHARMSINH DESAI UNIVESITY, NADIAD
FACULTY OF TECHNOLOGY
MECHANICAL ENGINEERING DEPARTMENT

The DDU mechanical engineering department is blessed with genius professors who are continuously involved in innovation and research activities. In Mechanical department several professors have performed patent related work. The brief description of granted patent is given below the summary table.

GRANTED Patent by the Faculty Members (@Indian Patent Office)

Sr. No.	Date of Grant	Grant Number	Name of faculty Inventors	Patent Title
1	01/02/2021	343903	Prof. Amit S. Patel	PAKODI VENDING MACHINE

PUBLISHED Patent by the Faculty Members (@Indian Patent Office)

Sr. No.	Date of Publication	Application number	Name of faculty Inventors	Title
1	11/01/2019	201721024125	Prof. Nimeshchandra S. Patel	FERROFLUID BASED HYDRODYNAMIC JOURNAL BEARING

FILED Patent by the Faculty Members (@Indian Patent Office)

Sr. No.	Date of Filing	Application number	Name of faculty Inventors	Title
1	16/03/2021	202021023027	Prof. Kavit R. Shah	IOT- BASED WEIGHING SCALE AND TRADING SYSTEM OF COMMODITIES

Details of Granted Patent

(1) Pakodi Vending Machine

Description of Invention

This invention is related to the food industry. In a pakodi vending machine the hollow puris which are stacked to the plate are automatically fed to the machine, in which first holes are made then paste of boiled potatoes and channa are fed in specific volume. Then flavoured water as per customer selection from the display screen is poured to hollow puris. Machine has a capacity to handle six different flavours and two different chattanis. Further sev is sprinkled over the prepared puris. This machine can serve dahi puri and sev puri as per customer selection from display screen. Machine is built with auto clean function that can be done daily or periodically. All materials are food grade. Further Mathematical algorithms are developed to reduce cycle time as per customer preference. This algorithm is further improved with artificial intelligence techniques and unsupervised machine learning algorithms for better customer service. The prototype is successfully tested and a commercial version of the machine will be launched soon. Our objective of invention is to spread the popularity of delicious and cultural street food to the global market and to support the dream of our Prime Minister Shri Narendra Modi's "Atma Nirbhar Bharat".

Media Publication:

1, February, 2021
Ahmedabad Mirror,
India Times

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NILKANTH DAVE

If you are among those countless panipuri fans who had to keep their hands off the crisp balls dripping with flavoured water due to coronavirus transmission concerns, take heart. Husband-wife duo Amit and Vaishali Patel have developed an automated panipuri vending machine that will allow people to satiate their craving hygienically. Their product has been granted the patent by government of India's Patent Office.

The machine offers the choice of flavours in panipuri in minimum time. Besides panipuri, it also serves sevpuri, dahipuri, etc.

Febuary, 1, 2021
Ahmedabad Mirror, India Times

Vaishali and Amit Patel with their invention (also in inset)

Genesis of the idea

Vaishali is a system manager and computer engineer at Indian Institute of Teacher's Education (IITE) while Amit, a mechanical engineer, is a faculty member at Dharmsinh Desai University (DDU).

"It was a newspaper article about a crackdown on panipuri vendors and others due to hygiene concerns that had me thinking about making an automated computer-based panipuri vending machine," said Amit.

"We have developed a mobile application to run the system through specially designed software. The machine comes with a tablet. After payment, the customer is asked to choose from panipuri, dahipuri, sev puri etc. It can offer six flavours of water for pani puri," he said. At one time, it can have 20 plates of puris and flavoured water for 60 plates—one plate with 6 puris each. When the process is started, a hole is made in the puri, after which it is stuffed with the stuffing and lastly filled with the chosen flavoured water. However, the puris, the potato-chana stuffing and the water have to be placed in the machine manually.

The couple wants to improvise on this model using artificial intelligence and machine learning in coming times

"This machine operates on a robotics system with algorithms. We have worked for four years to have a product that gives satisfaction of minimal contact and quick delivery of product. In this machine, one cycle is completed in 60 seconds," Amit added.

The couple wants to improvise on this model using artificial intelligence and machine learning in coming times to take the tongue-tickling panipuris to national and global platforms.