Team - Automators

(Robotics Club)

Automatic Roti Maker

Overview :

We are thinking of implementing a project in which a person can make roti automatically just by a press of a button.

We are planning to make this completely autonomous in which the user just has to fill the flour and water in their respective containers .

Motivation for the project :

We have seen lots of mechanical parts in the big factories doing all the stuff on their own.

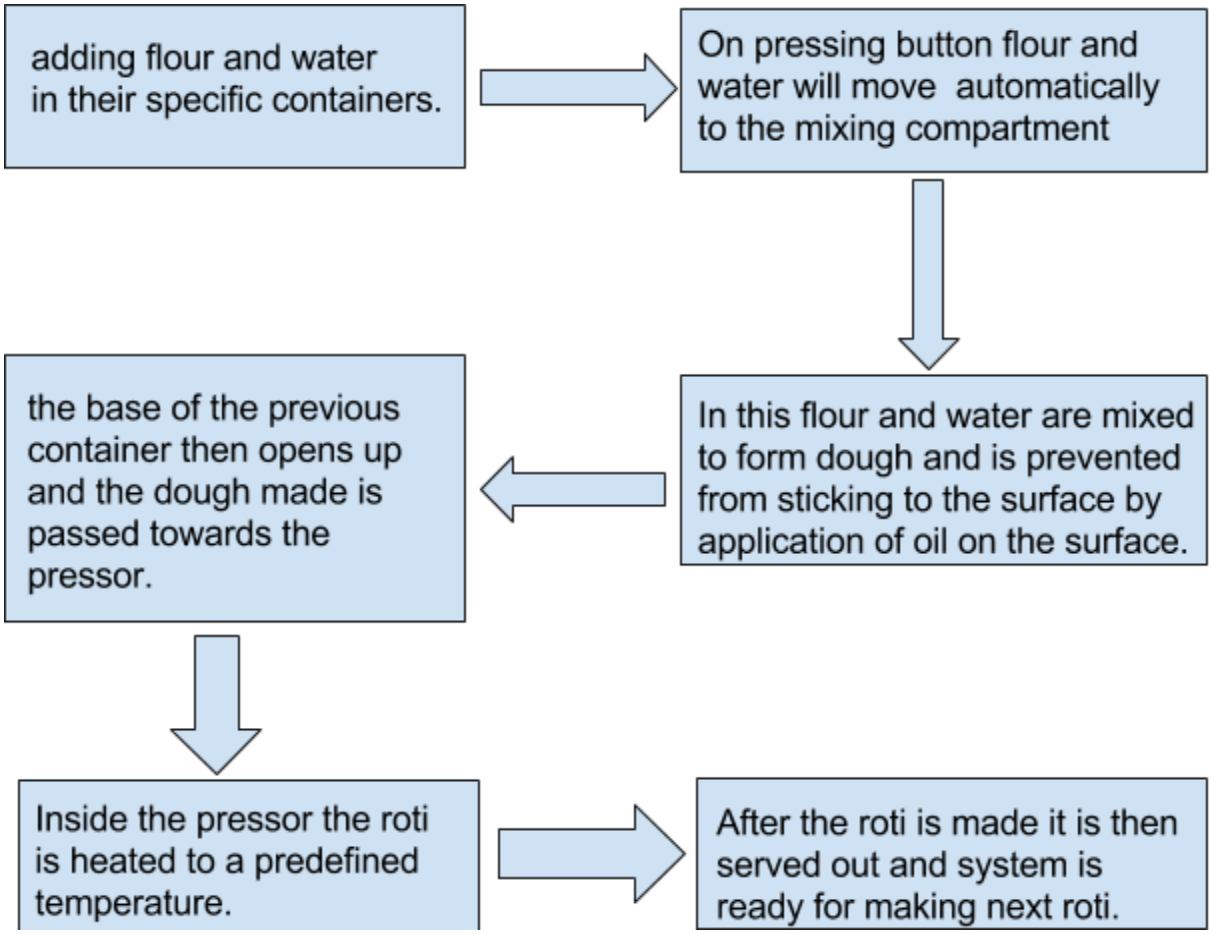
Fascinated by that fact we decided to make a project in which we can make stuff completely autonomous and that too useful for the society. We had a look at the way roti was made and saw all the hardwork put into it's making and were thinking that what we could do to change this all for the better and make our own roti machine.

We searched the internet and were lucky to find a video that inspired us to make this device.

[video of an automated lays making machine]

Instead of this project we will try to make a more simple project of making roti but the autonomousness of the project will be the same as that of the previous one.

Expected Manner of Working :



Topics to learn for Project :

1. Need to know the working and the use of different types of sensors(water flow rate detection sensor, weight detecting sensor.)
2. Learn to use Raspberry pie to integrate all the components of this machine.
3. Using stepper motors for causing opening and closing of the base of the mixing compartment.
4. Integration of dc motor with the rotater to make the mixer.
5. Heating coils for heating up the roti.
6. Learn the concept behind blade making to be able to design the perfect dough making blade.

Further Extension in the Project :

To integrate this with an app to already give order to the machine (with help of gsm module) to make roti beforehand.

Materials to be used : (All costs in Rupees)

1. Water flow sensors - 300
2. Weight Sensor/Valve Control - 500
3. Mixer Components - 300
4. Induction heating system - 1000
5. Motors :
    - Stepper - 500
    - Servo(If Need Be) - 150
    - Brushless D.C Motors(If Need Be) - 500
6. Containers - (As Applicable)
7. Linear Actuators - 5000 (If need be)
8. Raspberry Pi MicroController - 4000
9. Pressers - 500
10. Blades for mixers - To be 3D printed
11. Extra Accessories - To be decided

Learning Experience :

1. Learning Raspberry Pi

2. Integration and coordination of the mechanical components with the electrical components.

3. Learn the working of various motors as well as shift registers.

Timeline :

Week 1:

Learning raspberry pi and getting materials.

Week 2:

Making the blueprint and virtually executing to check for errors in calculations.

Week 3:

Setup of Mechanical part : setting up the device's mechanical parts.

Week 4:

Electrical part to be done, connections and wiring.

Week 5:

First testing and debugging. Checking if we need any add-ons.

Week 6:

Final tests checking quality of the rotis made.

Team Members :

1. Aarsh Dodhia
2. Dhrumil Shah
3. Krishna Subramani
4. Manas Bhargava