

# Roti Making Machine

Nai Vagesh Ramanbhai<sup>1</sup> Patel Divyesh Umedbhai<sup>2</sup> Patel Fenil Jayeshbhai<sup>3</sup>  
 Patel Gaurang Vinayakbhai<sup>4</sup> Patel Hiten Navinbhai<sup>5</sup>  
<sup>1,2,3,4,5</sup>Gujarat Technological University

**Abstract**— Portable & manually operated chapatti press cum vermicelli extruder device was designed and fabricated for the preparation of chapatti and vermicelli. Sensory evaluation overall quality scores of 50.15 and 48.4 for pressed chapatti and rolled chapattis respectively showed that quality of chapatti was not adversely affected as a result of mechanical pressing. The difference in chapatti making time by manual rolling and machine pressing was 17 s per chapatti and was statistically significant. Combined machine produced more numbers of chapatti as machine press time per chapatti was 12 S compared to 29 s of manual sheeting time. The observed variation in 1.5 mm thickness and 173.8 mm diameter from chapatti to chapatti was of the order of  $\pm 0.1$  mm and 1.93 mm respectively.

**Key words:** Roti Maker, Chapatti

## I. INTRODUCTION

Wheat is the basic raw material for the preparation of chapatti, bread, biscuit and pasta etc. Chapatti, a baked product prepared from whole wheat flour is the staple food of a majority of the population in many regions of the India subcontinent, Venkate-swara Rao 1986.

It is prepared by mixing whole wheat flour and water as described by Shurpalekar and Prabhavathi 1976, followed by sheeting the dough to about 1.5 mm thickness and cutting it into 150 mm diameter discs. The discs are baked on a hot plate at 200–210°C for 1–2 min and puffed over a live flame or coal fire for few seconds. Chapattis are generally prepared manually and served hot Sridhar and Manohar 2001. Increasing demand for ready to eat and easy to carry foods vested in mechanizing chapatti for marketing in unit packs. Flattening and sheeting of the dough is one of the most crucial steps in flat bread production and small variations in thickness changes bread quality significantly Rubenthaler and Faridi 1981. Flattening of dough is done by pressing / rolling or sheeting methods. In sheeting method, dough pieces or extruded dough is repeatedly passed under pressing rollers to form flat dough of required thickness Dough pieces are first rolled into flat oval shapes and then turned over for second rolling, which forms the oval shapes into round discs of desired thickness. In sheeting and die cut method, sheeted dough of desired thickness is passed under a rotary die and cut to get desired shapes. In pressing stamping method dough pieces are transferred to flat pans and hydraulic ram descends on the dough pieces and presses the dough Qarooni 1996. Stickiness of the dough, non-uniformity in the thickness and quality are some of the drawbacks of few commercial machines, which can be avoided by mechanical extrusion Sridhar 1991. Vermicelli, spaghetti and noodles, known as pasta products, have become major products of the cereal food industry. Pasta products are popular on account of their sensory appeal, low cost, ease of preparation, storage stability and increased consumer interest in ethnic foods Prabhasankar et al. 2007. Vermicelli is made using refined wheat flour or semolina milled out of durum wheat varieties.

Pressed chapatti repeatability results indicated that there was no significant difference in diameters of the samples. Appearance quality characteristics scores of 8 and 7 for 2 mm and 3 mm diameter vermicelli respectively indicated smooth and uniform surface characteristics. Sensory evaluation of the cooked vermicelli indicated no significant difference between 2 mm and 3 mm diameter vermicelli. Cooked weight and water absorption of 2 mm diameter vermicelli was more compared to 3 mm diameter vermicelli. This machine can also be used as a laboratory model as products of consistent thickness and diameter were obtained.

Vetrimani et al. 2005. Changing lifestyles and greater awareness about health have made vermicelli very popular and considered as an item of mass consumption. Saurrav Kumar et al. 2009, Ghufuran Saeed et al. 2009 have studied rheological properties of wheat flour and dough. Seema midha and Renu mogra 2007 have studied quality evaluation of vermicelli. Several studies have been reported on the technological aspects of chapatti and vermicelli processing, but very little information is available on mechanization of processing. Commercially available machines produce either chapattis or vermicelli but none in combination.

## II. WORKING

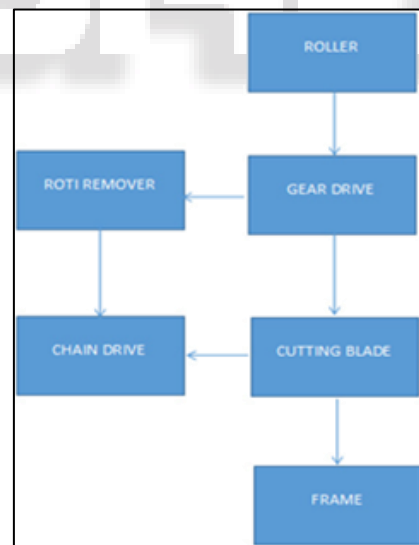


Fig. 1: Schematic Block Diagram

First of all, Attach S.M.P.S with machine, Machine is turned on. After the machine is turned on, Waffle flour goes into the roller and then it rolls into roller rolls. Then it was rotated by a Motor at exactly the speed.

Then it is attached to a cutting plate with a gear. Then she waffles cut and then the waffles are adjusted. Then waffle comes out of the roller on the plate. The blade is placed between the roti and the roller to release it. And roti out in a circular shape. Then it is extracted out.

A. Assembly

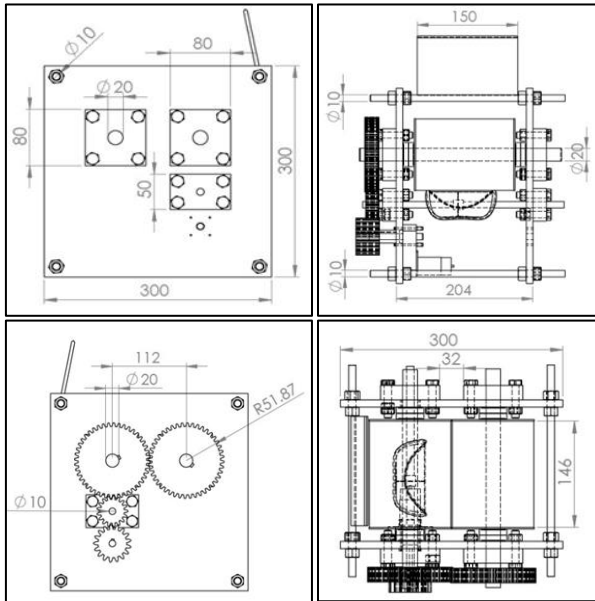


Fig. 2:

B. Body Frame

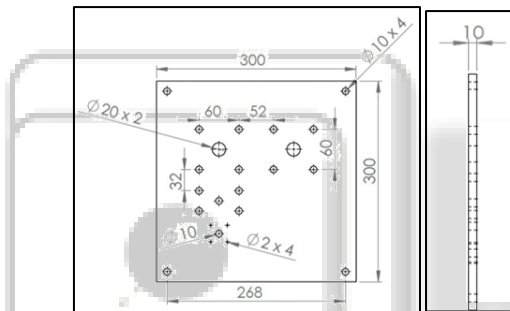


Fig. 3:

C. Roller

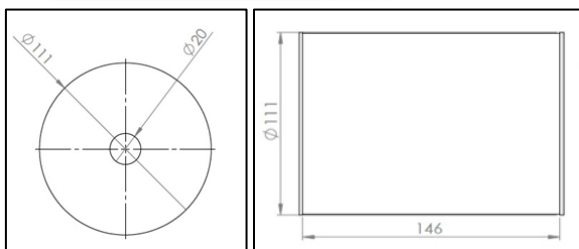


Fig. 4:

D. Bearing

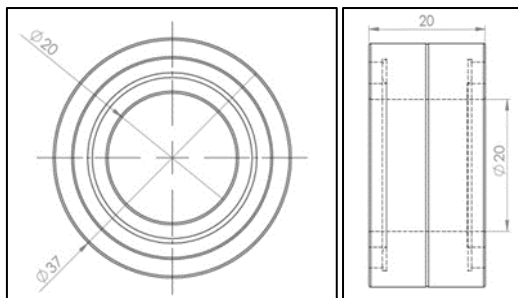


Fig. 5:

E. Cutting Blade

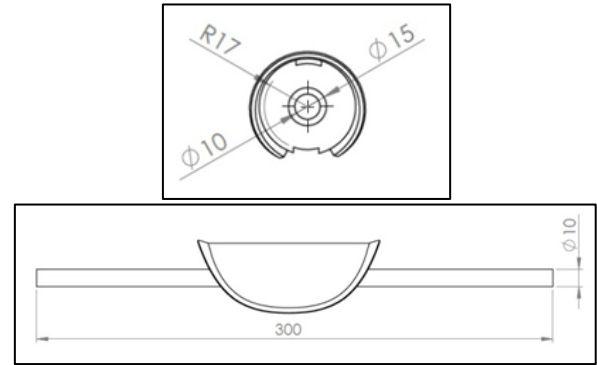


Fig. 6:

F. Gear

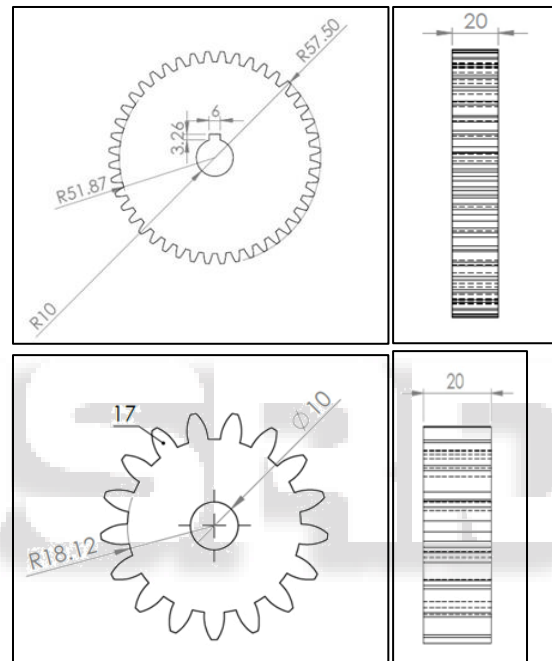


Fig. 7:

G. Motor

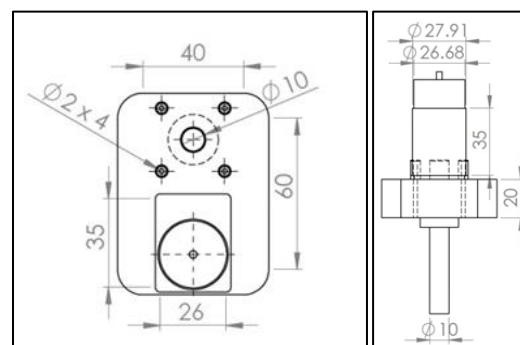


Fig. 8:

III. APPLICATION

- Use to Hotel and Home.
- Quick and easy to make chapatti.
- Suitable for large scale production.
- Reduce the man power.
- Compact design and thus easily fit in the kitchen.

#### IV. CONCLUSION & FUTURE SCOPE

- We use a wire between two rollers for getting proper alignment.
- For removing extra layer of dough or chapattis we use removing plate which placed at side of machine.
- We use of oil to the roller for non-sticky chapattis coming out from the machine.
- For proper cutting of the chapatti we reshape the edge of cutting blade.
- Rotary cutter gives the chapatti a circular shape.
- Robust construction, minimum vibration.
- Save time, energy & money.
- No pollution.
- Suitable for large quantities requirement, chapattis.
- If we can use variable speed controller then we can easily increase or decreasing the speed.

#### REFERENCES

- [1] <http://www.thebiscuitdoctor.com/manufacturing-processes/biscuitmaking>
- [2] <http://www.jasenterprise.com>
- [3] <http://www.pulveriser.co.in>
- [4] <https://dir.indiamart.com/impcat/chapati-maker.html>

