**TULSIRAMJI GAIKWAD-PATIL College of Engineering and Technology**
Wardha Road, Nagpur - 441108
Accredited with NAAC A+ Grade
Approved by AICTE, New Delhi, Govt. of Maharashtra
**(**An Autonomous Institution Affiliated to RTM Nagpur University, Nagpur**)**

**Department of Mechanical Engineering**

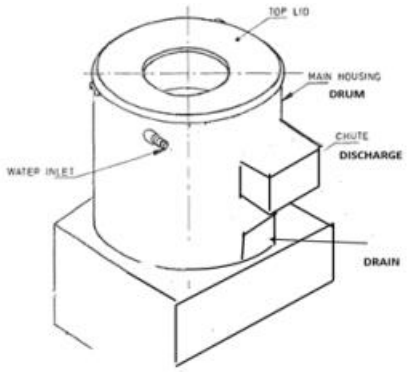
# Product development

| Sr. No. | Name of faculty | Title of project | Development |
|---|---|---|---|
| 1 | Dr. Vijay Talodhikar | Electrically operated Potato Peeling machine | Manually Operated Potato Peeling machine |
| 2 | Dr. Vijay Talodhikar | Electrically operated turmeric polishing machine | Manually operated turmeric polishing machine |

## 1. Electrically Operated Potato peeling machine:

Peeling variety of fruits or vegetable is a basic need of present era. Potato peeling processes face a numerous problem of time consuming and became inefficient during weekly breakdown maintenance. It is very important for food process industry as well as domestic point of view.

The apparatus was design for peeling potato. The peeling action is done by rotating abrasive lower plate which is mounted on main shaft . Th main shaft is coupled to electric motor through sets of pulley and v belt.The peeling machine consist of cylindrical drum abrasive lower plate top lid, side chute electric motor and steel frame



A machine has been fabricated which will perform the peeling operation by manual power.It is not easy to simulate mechanics of such a manually operated potato peeling operation based on logicIn the present work it was decided to formulate an generalized experimental data based model for manually operated potato peeling machine[MOPPM] with dimensionless π terms.. The influence of output parameters such as peeling time, output weight of peeled potato, average resistive torque and flywheel speed up time was studied critically.

**Figure5.6: Manually Operated Potato Peeling Machine**

The present machine has a capacity of 77.45 kg/hr. The peeling efficiency and flesh loss was 87.98 % and 7.8%.respectively

## 2. Development of Electrically Operated Turmeric Polishing Machine

The dried turmeric rhizomes are generally dirty and dry. That why it needed to remove all dirty clay and other impurities like soil and roots, to create dirty turmeric rhizomes in smooth and yellowish and bright it required to polish them. In most of the farm level turmeric polishing used as a manually. The manually polishing take more time and effort to polish turmeric rhizomes. This process

cannot fulfil the quality of product and it directly impact on the customer. It is a biggest issue in India for turmeric production. Always customer demand to a high-quality product in time for making turmeric powder. To overcome this problem a medium size polisher was designed and fabricated. Length, width and height of polisher were 1040mm,850mm and 1450 mm respectively. The 0.37 single phase induction motor was used as the source of power for operating the polisher.

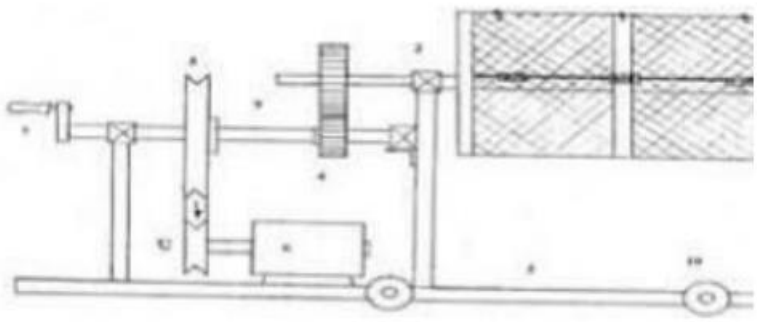


**Fig : Conceptual design of Electrically operated turmeric polishing machine**

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**Fig Fabricated Electrically Operated Turmeric polishing Machine**

## Modification in Turmeric Polishing Machine

In present investigation human powered flywheel motor concept has been used for chaff bricking making, wood turning, cloth washing. The machine uses bicycle technology with speed increasing gearing and flywheel ,which drive process unit through spiral and torque increasing gearing system. Pedal power is used to transmit the power to process unit. The machine is economically viable can be adopted for human powered process units which would have intermitted operation without affecting the end product.

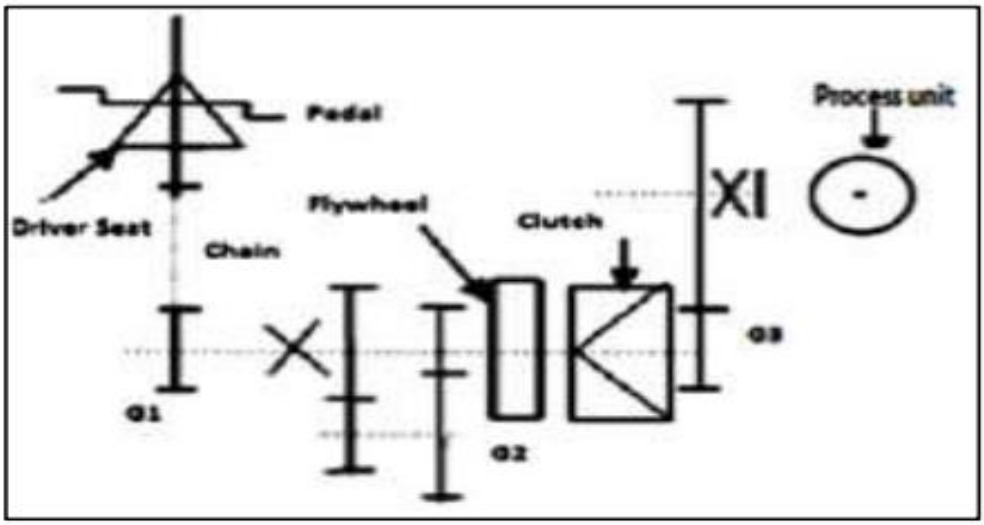


**Fig: Proposed design of HPFM for turmeric Polishing Machine**

**Conclusion:**

From literature survey it has been proved that Human-driven flywheel motor gives excellent examples with significant results. A wide range of performance metrics and their application ensure that the system work both functional and economically viable. The proposed design of polishing the turmeric with human power will be feasible source of energy that demand energy from 2-3 hp.