



MULTIPURPOSE MACHINE

**Viraj Pawaskar¹, Shradha Dewoolkar², Sanchit Gawas³, Pranav Zulpe⁴, Manish Sawant⁵,
Aman Vanu⁶, Prof A.J. Rane⁷**

^{1,2,3,4,5,6,7}Students, Dept. of mechanical Engineering, Yashwantrao Bhonsale Institute of Technology, Sawantwadi, India

⁷Lecturer, Dept. of mechanical Engineering, Yashwantrao Bhonsale Institute of Technology, Sawantwadi, India

ABSTRACT

We present the design and construction of a compact, portable, multi-purpose machine capable of cutting, drilling, grinding and polishing. The machine integrates a variety of attachments, enabling fast and cost-effective machining processes that traditionally required separate machines. By using a single power source and bevel gear, it is possible to operate multiple machining centres simultaneously, improving productivity, saving electricity, reducing costs, and saving space. The development of such versatile machines is essential for improving production rates and products in the age of automation.

However, the separate equipment is required for performing each and every operation and hence the cost of setup is very high. This project deals with the fabrication of multipurpose mechanical machine which is capable of performing a number of operations in single machine. The developed machine is capable of performing operations such as hacksaw cutting, drilling and grinding in a single machine which has only one prime mover. This not only saves the space but also helps in saving the power. In addition, the cost of setting up the three machines is eliminated as the price of single machine is almost equivalent to the single drilling machine

Key Words: Multi-Purpose Machine, Crucial In Era Of Automation, Increase Productivity, Rapid And Cost Effective.

INTRODUCTION

In This Ever-Changing Environment Need For Manufacturing Of Products And Higher Rate Is Greatly Enhanced By The Market Trend And Demand. The Process Involved In Manufacturing Also Needs A Global Approach And Has To Be Done By Making The Process Easier And Reliable. Considering These Aspects There Is A Need To Design A Methodology That Would Hope For The Higher Rate Of Production At Greater Quality.

Industries Are Basically Meant For Production Of Useful Goods And Services At Low Production Cost, Machinery Cost And Low Inventory Cost. Today In This World Every Task Has Been Made Quicker And Fast Due To Technology Advancement But This Advancement Also Demands Huge Investments And Expenditure, Every Industry Desire To Make High Productivity Rate Maintaining The Quality And Standard Of The Product At Low Average Cost. In An Industry A Considerable Portion Of Investment Is Being Made For Machinery Installation. So, In This Project We Have A Proposed A Machine Which Can Perform Operations Like Drilling, Sawing, Grinding Simultaneously Which Implies That Industrialist Have Not To Pay For Machine Performing Above Tasks Individually For Operating Operation Simultaneously.

The Project Focuses On Fabrication Of Machine Which Can Be Used To Perform Different Operations Required In Small Fabrication Shops In A Single Machine. This Would Not Only Cut Down The Cost Of Operations Of Three Machines But Also The Cost Of Setting Up A Fabrication Shop. The Primary Focus Of This Research Work Is To Reduce The Cost As Well As The Floor Space Required By These Three Machines.

ACTUAL MODEL DIAGRAM



METHODOLOGY

The Methodology For Designing And Developing A Multipurpose Machine Involves A Structured Approach That Ensures Functionality, Efficiency, And Feasibility. Below Is A Step-By-Step Methodology:

The Methodology For Designing And Developing A Multipurpose Machine Involves A Structured Approach That Ensures Functionality, Efficiency, And Feasibility. Below Is A Step-By-Step Methodology:

FEATURE SCOPE

This Project Will Be Helpful For The People Who Can't Afford The Multipurpose Machine They Can Easily Buy This Machine In Affordable Price And The Less Time-Consuming Machine. The Machine Works On Motorized System To Safely And Efficiently Bend The Metal.

- **Industrial Survey.** • Analysing The Problem Which Can Be Solved By Using Tool Engineering.
- **Literature Survey**
- For Finding Better Components Of Machines Which Will Be Useful For Our Product.
- **Finalizing Of Problem Statement And Objectives.**
- Finalizing The Objectives To Accomplish The Project.
- **Designing Of Systems Or Components.**
- Designing For Mounting Motor Gear Box And Other Components.
- **Manufacturing And Purchasing Of Components.**
- Purchasing The Required Components Manufacturing Customer Components.
- **Assembly.**
- Mounding Of Motor And Gear Box On To The Chassis.
- Final Assembly Of All Components Motor Gearbox Belt Dehusking Tool Etc
- **Trial And Testing.**
- Testing For Actual Working With Proper Output.
- **Result.**
- Interpolation Of Results And Conclusion

REFERENCE & BIBLOGRAPHY

- [1]. J.Clara And M.Jagadeeshraja, "Automation In Ration Product Distribution," International Journal Of Advanced Research In Electrical, Electronics And Instrumentation Engineering, Vol. 5, No. 1, Pp. 142-147, 2016.
- [2]. Mohit Agarwal, Manish Sharma, Bhupendra Singh And Shantanu, "Smart Ration Card Using Rfid And Gsm Technique," In Fifth Int. Conf Confluence The Next Generation Information Technology Summit, 2014, Pp. 485- 489.