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# A Review on Pedal Powered Washing Machine

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**ABSTRACT:** This paper discusses the importance of human power from the earliest times to the present and its future scope with respect to its literature reviews. This project is specially made for the purpose of its utilization to wash the cloth by means of applying pedal power. Most of the places in rural areas are still suffering from shortage of electricity because of which they are unable to use most of the electronics appliances for their own betterment. This project includes the construction and utilization of the peddling washing machine which will entirely work on human power generated by the pedaling process under optimum conditions. The following pages in the report includes about the literature review of pedal powered washing machine which are collected with respect to design and fabrication of pedal powered washing machine by different author's literature surveys respectively.

## I. INTRODUCTION

This project focuses on the main household work which is washing clothes, an important work in every individual house. Most of the people use washing machine for the washing operation of the cloths which is available in most of the houses now a days. This machine totally works on electricity which is available almost everywhere these days. But most of the rural areas in our country are lacking in the electricity power supply because of which they cannot use most of the appliances working on power supply. Also there are a majority of people in the country who are economically backwards and hence cannot afford a washing machine at such high price. We aim to develop a model of washing machine which would entirely work on human power under optimum conditions so as it would work in the rural areas as well as make it affordable by using easily available resources to make it cost efficient and easy for implementation of work. Because of the depletion of nonrenewable resources at such an proportion rate as they are used for large amount of power generation for industries and well as the increasing population, we need to find an alternative way for the generation of electricity, where we can use the concept offlywheel of the better ignition of electricity which is use it in the model of the operation and power storage whenever required. This if possible can also be used on the large scale in urban region for the generation of power and many other health related applications.

## II. LITERATURE REVIEW

Before starting our work we had viewed many research papers which indicates that for a production based industries machine installation is a crafty and a skillful task as many factor are associated with it such as power consumption, time required, maintenance cost, no of units produced per machine etc.

Some research papers which led us an idea are as follows:

**Dharwa Chaitanya Kirti Kumar** designed and developed a multipurpose machine which does not require electricity for several operations like cutting, grinding etc. This is a human powered machine runs on chain drives mainly with human efforts. But if you wanted to operate this machine by electric power this machine can also does that. It has some special attachment so use both human power as well as electric power. The design is ideal for use in the developing world because it doesn't require electricity and can be built using metal base, chain, pulley, rubber belt, grinding wheel, saw, bearing, foot pedal, electric motor, chain socket.

**Rakesh Ambade** developed a conceptual model of a machine which would be capable of performing different operation simultaneously, and it should be economically efficient. This machine can be used in remote places where electricity is irregular or insufficient. It is designed as a portable one which can be used for cutting in various places. It can be used for operating on materials like thin metals, wood and p.v.c. The material can be cut without any external energy like fuel or current. Since machine uses no electric power and fuel, this is very cheap. Energy is the most vital aspect in the development of modern technological civilization. In the present work, a human powered multipurpose machine is developed which can perform three types of operations drilling, sawing and grinding. Power required for peddling is well below the capacity of an average healthy human being. The system is also useful for the work out purpose because peddling will act as a health exercise and also doing a useful work.



**Sharad Srivastava** developed a conceptual model of a machine which would be capable of performing different operation simultaneously, and it should be economically efficient. In this machine we are actually giving drive to the main shaft to which scotch yoke mechanism is directly attached, scotch yoke mechanism is used for sawing operation. On the main shaft we have use bevel gear system for power transmission at two locations. Through bevel gear we will give drive to drilling center and grinding center. The model facilitates us to get the operation performed at different working center simultaneously as it is getting drive from single power source. Objective of this model are conservation of electricity (power supply), reduction in cost associated with power usage, increase in productivity, reduced floor space.

**Dr. ToshimichiMoriwaki (2006):** Recent trends in the machine tool technologies are surveyed from the view points of high speed and high-performance machine tools, combined multifunctional machine tools, ultra-precision machine tools and advanced and intelligent control technologies.

**Frankfurt-am Main, 10 January 2011:** The crisis is over, but selling machinery remains a tough business. Machine tools nowadays have to be veritable “jack of all trades”, able to handle all kinds of materials, to manage without any process materials as far as possible, and be capable of adapting to new job profiles with maximized flexibility. Two highly respected experts on machining and forming from Dortmund and Chemnitz report on what’s in store for machine tool manufacturers and users. Multi-purpose machines are the declarations of independence. The trend towards the kind of multi-purpose machining center that are able to cost efficiently handle a broad portfolio of products with small batch sizes accelerated significantly during the crisis. “With a multi-purpose machine, you’re less dependent on particular products and sectors”, explains Biermann.

**Pradip R. Bodade** proposed a machine which can perform operations like drilling, grinding, cutting, fabrication of ‘MULTI-FUNCTION OPERATING MACHINE’. The concept of Multi-Function Operating Machine mainly carried out for production based industries. Industries are basically meant for Production of useful goods and services at low production cost, machinery cost and low inventory cost. The model facilitates us to get the operation performed at different working center simultaneously as it is getting drive from single power source. Objective of this model are conservation of electricity (power supply), reduction in cost associated with power usage, increase in productivity, reduced floor space. This machine is may be used in industries and domestic operation.

**HarshalG.Suryawanshi** proposed that Grinding is a machining process which uses an abrasive wheel or belt type cutting tool. This grinding machine is used in various industries for finishing of work pieces and International Journal of Scientific Research in Science, Engineering and Technology (ijsrset.com) 1602 give high surface quality. Grinding with wheel or belt type cutting tool is used for different precision applications such as deburring in foundries and constructions, polishing, engraving and cut-off grinding. This paper highlights on recent development by using various power tools such as electric power tools & pneumatic power tools also by implementing robotic systems.

### III. CONCLUSION

The processes and conceptual model stated in literature review such as running the multi-purpose machine with help of electricity generated by pedaling work with effort of human was not very efficient and was inapplicable in this modern industry. Thus, we developed and modified the model based on the literature review and came up with a better idea of use of multi-purpose machine operations with single power source.

### REFERENCES

1. Human Power Flywheel Motor.”-A past review, Proceedings of the 1st International and 16thNational
2. S.M.Moghe&K.S.Zakiuddin (2013) “Design and Development of Turmeric Polishing Machine Energized by Human Power Flywheel Motor.”-A past review, Proceedings of the 1st International and 16th National
3. Bicilavadora: The Pedal-Powered Washing Machine - IDEAS 2005 Proposal. 3.Bruzzone, M. &Wieler, A. (2010) “Reflecting on an Intercultural Design-Build Project in the Kathmandu Valley” Final Draft, February 5, 2010.
4. Bruzzone, M. and Wieler, A. 2010. Reflecting on an Intercultural Design-Build Project in the Kathmandu Valley| Final Draft, February 5, 2010
5. Darrow, Ken, and Pam, Rick. "Energy: Pedal Power," from Appropriate Technology Sourcebook pp.189-196. Stanford, California: Volunteers in Asia, Inc., 1977.
6. Bicilavadora, The Pedal Powered Washing Machine – IDEAS 2007 Porposal Bruzzone M and Wieler A 2010



Reflecting on an Interculture design build in the Kathmandu valley final draft Feb 5 2010

7. Darrow Ken and Pam Rick, "Energy pedal power" from appropriate technology source book pp 189-196 Stanford California volunteers in Aisainc. 1997
8. Whitt, Frank Rowland and Wilson, David Gardner Bicycling science 2nded Cambridge Massachussts the Mit press 1983
9. S.M.Moghe&K.S.Zakiuddin (2013) "Design and Development of Turmeric Polishing Machine Energized by Human Power Flywheel Motor."-A past review, Proceedings of the 1 st International and 16 th National Conference on Machines and Mechanisms IIT Roorkee, India, Dec 18-20 2013
10. 2.Bicilavadora: The Pedal-Powered Washing Machine - IDEAS 2005 Proposal.
11. 3.Bruzzone, M. &Wieler, A. (2010) "Reflecting on an Intercultural Design-Build Project in the Kathmandu Valley" Final Draft, February 5, 2010.
12. S.M.Moghe&K.S.Zakiuddin (2013) "Design and Development of Turmeric Polishing Machine Energized by Human Power Flywheel Motor."-A past review, Proceedings of the 1 stInternational and 16 th National Conference on Machines and Mechanisms IIT Roorkee, India, Dec 18-20 2013
13. 2.Bicilavadora: The Pedal-Powered Washing Machine - IDEAS 2005 Proposal.
14. 3.Bruzzone, M. &Wieler, A. (2010) "Reflecting on an Intercultural Design-Build Project in the Kathmandu Valley" Final Draft, February 5, 2010.
15. <http://en.wikipedia.org/washing> mc/pedal-powered-washing-machine.htm  
<http://en.wikipedia.org/wiki/Washingmachine>.
16. <http://www.ideafinder.com/history/inventions/washmachine.html>





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