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## Three Way Electricity from Waste Water with Garbage

By Giftson Felix D

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*Strictly as per the compliance and regulations of:*



# Three Way Electricity from Waste Water with Garbage

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## I. INTRODUCTION

Today the dumping of large number of garbage is been done in the water bodies in most developing countries as seen in below image. This spoils the nature of water bodies. Avoiding this dumping is impossible.



So from this paper we can dispose that garbage to the maximum extent as well as generate electricity from that thing.

### Previous improvements

- Domestic waste to Bio-Fuels

The garbage is dried and sent to the furnace where it is burnt and the gas or smoke from it is used to run a turbine and so electricity is generated

- Microbial Fuel Cell

In this catalytic reaction of microorganisms and bacteria that are present in nature is used to produce electricity by converting chemical energy content of organic matter.

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Like this there are many processes but main problem or disadvantage is this is done in small amount or the amount of electricity produced is very less or more than 50% electricity produced is used by the same equipment.

## II. COMPONENTS PRESENT



BELT / CHAIN CONVEYOR



TURBINE WHEEL



GENERATOR



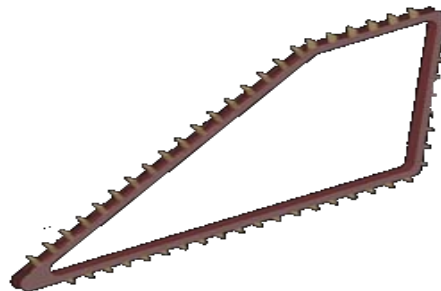
FURNACE

## III. PRINCIPLE BEHIND THIS IDEA

The working principle of the idea presented in this paper is a specially designed turbine which operates by using the kinetic energy of the flowing waste water with garbage. During rotation the specially designed turbine wheel with buckets carry garbage

along with waste water from here both garbage and waste water are diverted into separate passage and by means of turbine and furnace some process takes place and so at three different points electricity is generated.

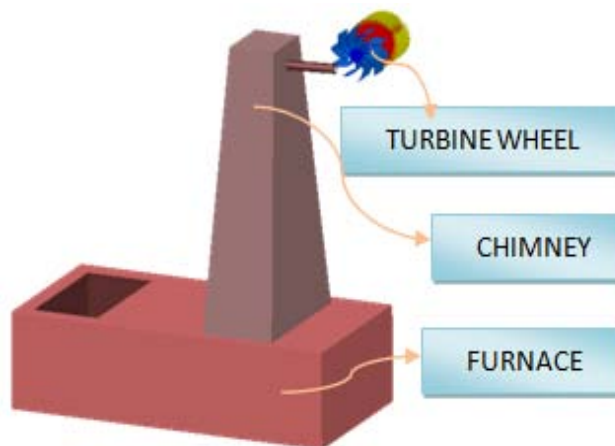
*Belt conveyor Setup*



This is the conveyor type used in this system this may be belt or chain. This conveyor has many separators attached to it.

This separator has two purposes one is during upward movement preventing the garbage from sliding down and on another side this separator moves due to the kinetic energy of water obstructed by the separator.

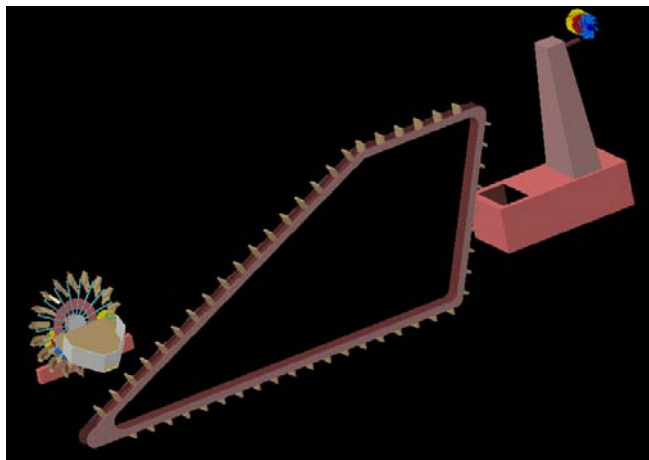
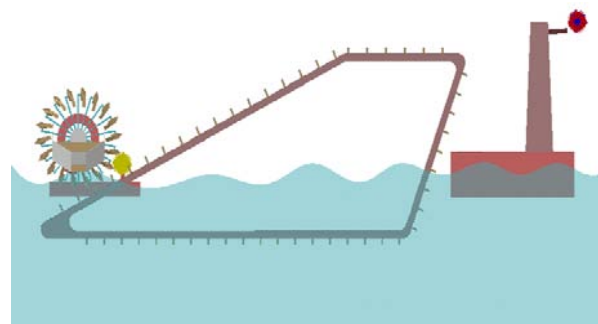
*Furnace Setup*



In this setup furnace, a chimney and an outlet are attached. The furnace has an opening which is used for getting the garbage from the belt conveyor. A turbine wheel is placed nearer to the outlet and so it is coupled to a generator.

V. WORKING

The working principle behind this idea is that a specially Designed turbine wheel which operates by using the kinetic energy of the flowing waste water with garbage this wheel carries the garbage along with waste water



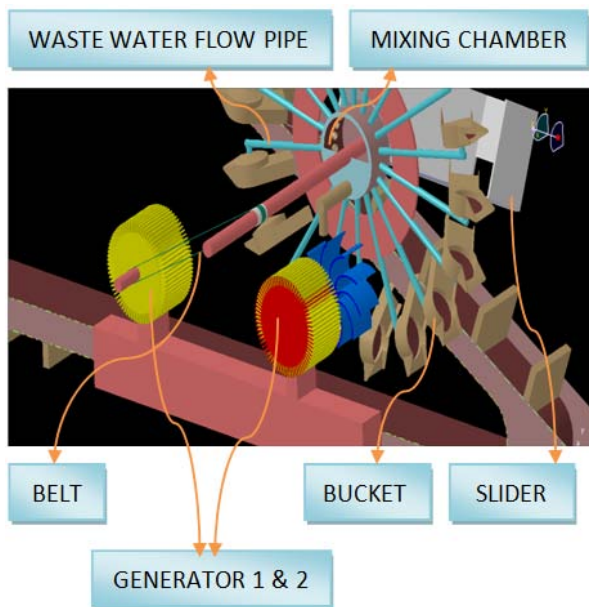
The above image depicts the complete working principle of this idea.

IV. CONSTRUCTION

The construction of this idea is very simple here it is divided into three separate units. They are

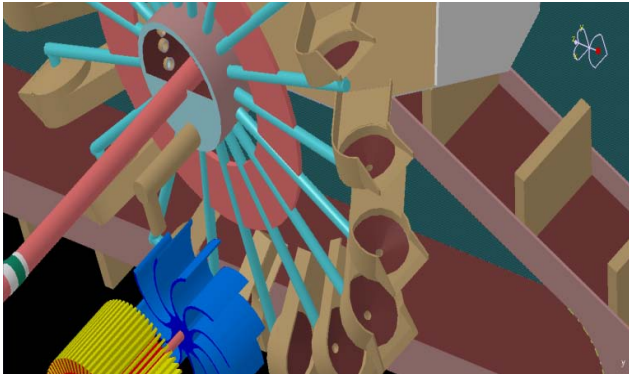
- ✦ Specially designed turbine setup
- ✦ Belt conveyor setup
- ✦ Furnace setup

*Specially Designed Turbine Setup*



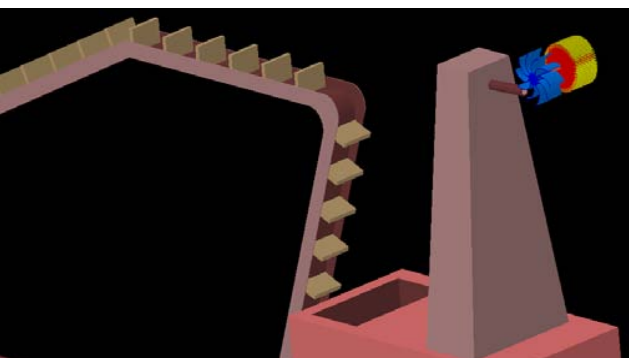
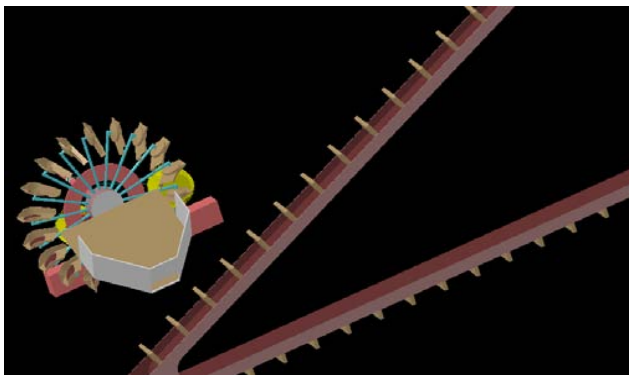
In this setup the specially designed turbine with buckets is connected to mixing chamber by the waste water flow pipe. The mixing chamber outlet leads to the turbine wheel which is coupled to a generator at the same time the specially designed turbine wheel is also coupled to a generator by means of belt.

This specially designed turbine wheel has many buckets which has an opening at the centre which is connected to a waste water flow pipe as the wheel rotates with buckets carrying the garbage as well as waste water the waste water from the bucket is taken to the mixing chamber by the waste water flow pipe here continuously waste water is collected as shown in the below figure.



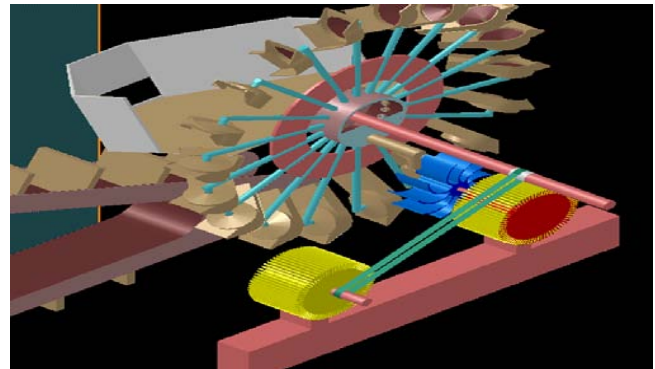
This collected waste water is taken out through the outlet this leads to a turbine wheel. Thus this wheel rotates and the same makes the generator coupled to that turbine rotates and so electricity is produced. This is the first electricity output point.

This turbine wheel has buckets which carries the garbage and throws it in the slider so that the garbage falls into the belt conveyor. This conveyor works by means of the same kinetic energy of water the separator in the conveyor is pushed by the water and so the conveyor rotates and thus it carries the garbage upward here it is taken to open air thus it is dried to remove the water content in it. Then it is dropped into the furnace



Inside the furnace there is a sliding plate which takes that garbage into the furnace and here it is dried by means of dry air. Then it is fired so that hot gases and smoke is left out this is taken out through the outlet pipe which leads to a turbine wheel. Due to the force of hot gases and smoke the turbine wheel rotates and so the generator coupled to it rotates and produce electricity as shown in the figure above. This is the second electricity output point.

The specially designed wheel which is operated by the kinetic energy of water.

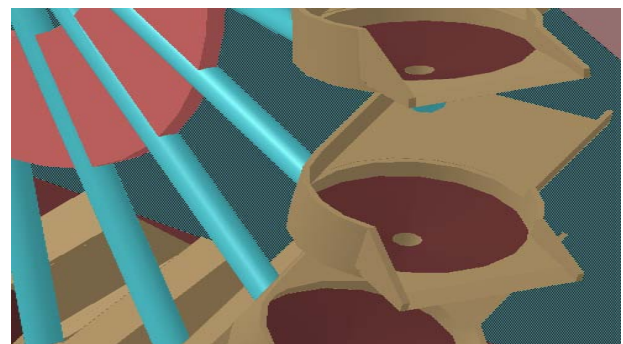


This operation also causes some rotational energy hence which in turn this is used by transferring the motion to the generator by means of a belt as shown in the above figure. So at this point also some small amount of electricity is produced this is the third electricity output point.

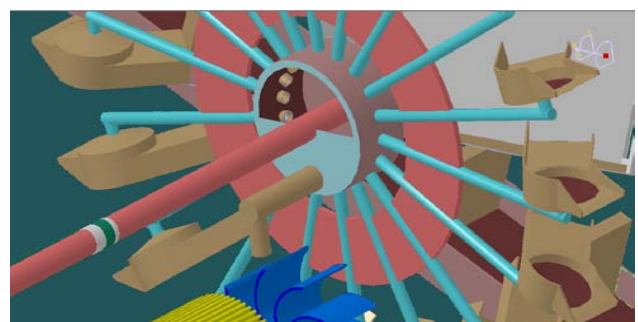
Thus at three points electricity is generated and at the same the garbage is also disposed safely without much harm.

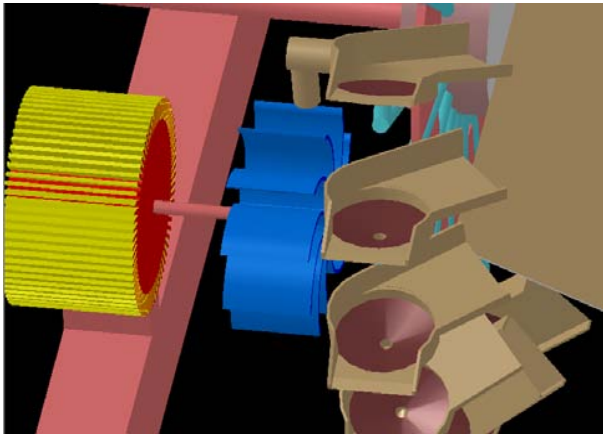
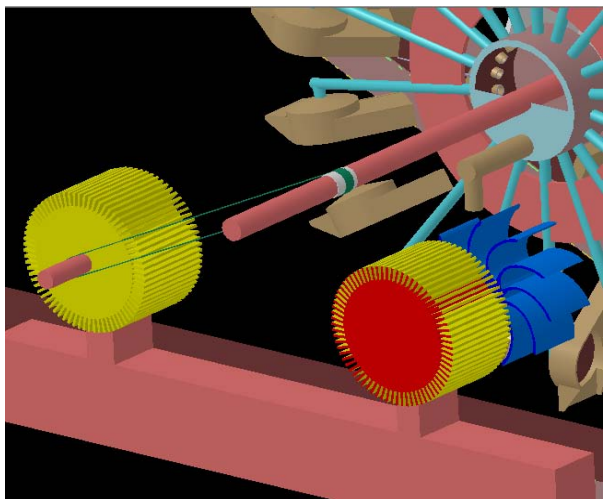
## VI. OTHER IMAGES

*Closer View of Bucket*



*Close-up View of Mixing Chamber*



*Clouser View of Mixing Chamber**Clouser View of First Electricity Generation Point**Clouser View of Third Electricity Generation Point*

## VII. ADVANTAGES

- ❑ Electricity is generated at three points.
- ❑ Garbage is disposed safely.
- ❑ Waste Water and Garbage present in it separated to the extent.

## VIII. DISADVANTAGES

This purely depends on the flow of the water.

- ❑ Maintenance is a major problem

## IX. CONCLUSION

On the way of many improvements to generate electricity from the waste water with the garbage this paper has added one more way which completely separates the waste water and garbage as well as generate electricity at three points.

## X. ACKNOWLEDGEMENT

I am using this opportunity to express my gratitude to my parents who supported me throughout the paper. I am thankful for their aspiring guidance and supervision during the process.

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