

## EXPERIMENTAL SETUP ON SMALL-SCALE POWER GENERATOR FOR ENVIRONMENTAL VALUE

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### ABSTRAK

*Power generator is designed to save electricity. This is because there is a lot of electric wastage in this world. There are many types of generator that do not save electricity. Nevertheless, the product that we created not only save the electricity, it also save the planet and save our money. Next, most of the product in the market do not have a way to save the earth by using natural resources. As a solution, we created this product for saving our money to pay the electricity bills. Moreover, this product has been upgraded with turbine installment. Therefore, the operation of a generator is based on the principles discovered by Faraday. Next, to operate this product it used the water from main tank house. Apart from that, the methods that we use is a hydraulic turbine converts the energy of flowing water into mechanical energy. Although, a hydroelectric generator converts this mechanical energy into electricity. Besides that, we want to introduce to the world that electric system can be changed for the sake of the future. Although, this product is use of the hardware. Also, this generator can be used at house. As a conclusion, we as a new generation must think about the future so there will be many products that are produced devoted to natural resources.*

**KEYWORDS:** *power generator, turbine, electric*

### 1. INTRODUCTION

There are many types of generator, but that do not save electricity. So the product that created not only save electricity but it save the planet and save the money. For example, the lights are switching on even days are already noon. From this, we found that electricity bills are rising due to wastage. We are also looking for resources to save electricity bills using natural resources. The problem here is the natural resources need to be generated using another tool. Conclusion, the water source will be processed to generate electricity using the dam. How does the dam want to be placed in a house? It is impossible. So, after the research and combine the ideas we wanted to create a tool that help to save electricity in a house. We narrow the scope of work from the dam to be replace new scope to can place at house for generates electricity and store the electric in the battery.

### 2. LITERATURE REVIEW

Hydropower is one of the oldest power sources on the planet, generating power when flowing water spins a wheel or turbine. Hydropower is also a renewable energy source and produces no air pollution or toxic byproducts. Thus, every state uses hydropower for electricity, and some states use a lot of it. In fact, there are over 70 percent of Washington State's electricity comes from hydropower, and 11 states get more than 10 percent of their electricity from hydropower. Nevertheless, hydropower costs less than most energy sources. However, some states that get the majority of their electricity from hydropower, like Idaho, Washington, and Oregon, have energy bills that are lower than the rest of the country. By that, we can see by using hydropower we also can save money.

This project focus on how help the earth by reducing global warming from getting worse in the future. Other than that, wastage of money and electricity also inspiring us to make this product. Our product POWER GENERATOR are designed for produce a continuous power in which a wheel or turbine. It's typically fitted with vanes, it's also made to revolve by a fast-moving flow of water. Moreover, by using this product we will generates electricity using water from the main tank. So, from there water will flow at turbine while the Power Generator generates the power and save at the battery.

### 3. Methodology

In this project, hardware and software method are proposed to develop the research solution. The designed Power Generator is easy to control manually, which is work based on water from tank. Turbine will be operated when the water flow through it and will generate the power to charge the battery and activate the inverter. AC will operator depend on that pressure of water which the value of KpI have been reach. In addition, the design of Power Generator more safety for the user because it not heavy machine. The results of this project will be technically and clinically tested to determine the suitability for home installation.

#### 3.1. Hardware specification

- Turbine
- Battery
- Inverter
- LED Display
- PVC
- Charging Circuit

#### 3.2. Analysis and result

The analysis was done for charging circuit .Besides that the using of both load and no load in this project also have been analysed with the appropriate way to get better result. There are the detection by LED battery Level.

**Table 1.** Comparison Battery between Load and No Load

TIMING (min)	AC Value	LOAD (DC)	NO LOAD (DC)	PSI
0	240	9V	9.8V	15
8	240	11.3V	12V	15
16	240	11.3 V	12.4 V	15
30	240	11.3 V	12.6 V	15

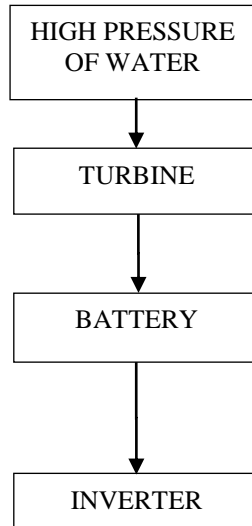
From the table above we can said the Power Generator can be a supply for electricity and can store the battery if don't have a load.

### 4. RESULT

Figure 1 is the picture of connection hydroelectric. The result shows that the product was generate using water by the pump pressure. It was fully function if not using a water because the product have a battery. After using the product the battery is only 9.8V and the inverter does not release the output. The battery needs to recharge using the turbine and stored in the battery to remove the 12V DC output and then convert to 230V AC. We use water which at least has a pressure of 15 pSi to move the turbine so that it can be generated to get 12v output. It takes about 8 minutes 23 seconds to generate from 9.8V to 12.0V.



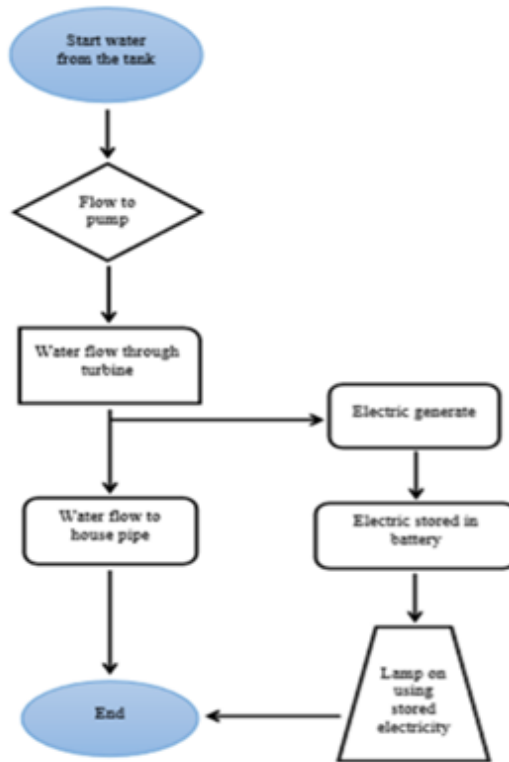
**Figure 1: How to Generate the Power Generator**



**Figure 2: How the Circuit Works**

Figure 2 is the block diagram our products have been innovated to be easy-to-carry and held products. Installation and application of our products only requires sufficient water pressure to drive the turbine to generate electricity. When electricity starts generating electricity by turbine, electricity will be thrown into 12v battery. We use the inverter to convert from 12v to 230v. Electricity from 230v output can be used.

Figure 3 Show how Installation of our products can be done in the main tank of the house. Throughout the main water tank will be discharged and proceed to POWER GENERATOR. Water pressure from the main tank can run the turbine to produce electricity. Modifications to installing our products do not require high costs according to our primary objective of saving. If installation is required at home or food premises, only pvc pipes and pvc connectors are required.



**Figure 3: The Details**

## 5. CONCLUSION

We can conclude, the hypothesis was right that we using the natural resources to generate electricity for home use. We also can reducing usage of electricity. The conserving family was able to save even more by using Power Generator. Other than that, more and more people are thinking about the environmental issues and ecological condition of Earth nowadays. Our planet suffers from numerous problems, which have been caused by the results of the excessive anthropogenic activity. Moreover, the entire planet suffers from pollution, global warming, deforestation and extinction of biological species. These problems are extremely relevant and require rapid and intensive solutions. So we created this product in particular to protect the environment and the earth from harm.

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