

1) PROJECT TITLE: SIMPLE AND CREATIVE 220V WATER TURBINE PERMANENT GENERATOR

PROJECT PROPOSAL REFERENCE NO.: 46S_BE_3949

2) CHANNABASAVESHWARA INSTITUTE OF TECHNOLOGY, GUBBI, TUMKUR

Department of Electronics and communication engineering

3) NAME OF THE STUDENTS:

NAME	MAIL-ID	CONTACT NO.
Ms. MONICA K A	ananthmonika@gmail.com	8884165924
Ms. DIVYA SHREE P	divyashreep03@gmail.com	9449305303
Mr. CHINMAYANANDA M N	anandchinnu86@gmail.com	9686015196

GUIDED BY:

Prof. Mr. Rajendra C J	rajendra.cj@cittumkur.org	9972549850
------------------------	--	------------

4) KEYWORDS:

Water turbine , Permanent generator , Small-scale power generation, Hydroelectric power, Sustainable technology, Off-grid electricity, Eco-friendly power generation, Low-cost generator, Energy efficiency, DIY turbine, Power generation from water, Compact water turbine, Innovative power solution.

5) INTRODUCTION

Introducing the Simple and Creative 220V Water Turbine Permanent Generator, a revolutionary device that generates clean and sustainable electricity. Designed with simplicity and creativity, this generator harnesses the power of flowing water to provide a reliable source of energy. It operates at 220V, making it suitable for small-scale power systems and off-grid locations. With its user-friendly design, it can be easily installed in rivers or streams or a water pump, utilizing hydroelectric power without complex infrastructure. The generator's compact and efficient construction ensures optimal energy conversion, even from low-flow water sources. It requires minimal maintenance and offers an eco-friendly alternative to traditional power sources. The Simple and Creative 220V Water Turbine Permanent Generator is a cost-effective solution for homes, communities, and remote installations, enabling sustainable power generation. Join the renewable energy movement and unlock the potential of water with this remarkable generator.

6) OBJECTIVE

1. Provide a simple and creative solution for generating electricity using flowing water.
2. Generate clean and sustainable energy that reduces dependence on fossil fuels.
3. Offer a reliable and consistent source of 220V power for small-scale applications.
4. Enable off-grid electricity generation in remote locations
5. Design a user-friendly generator that can be easily installed and operated by individuals.

METHODOLOGY

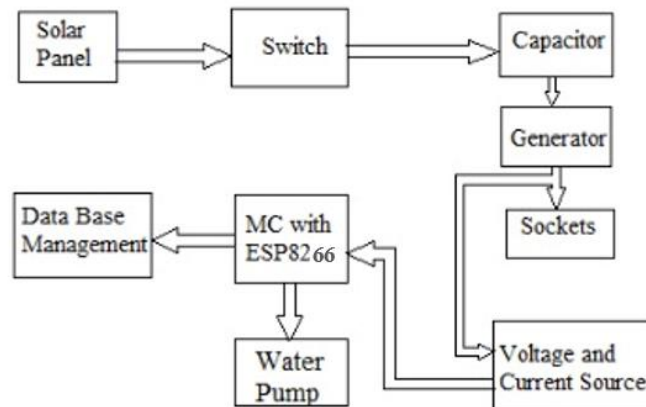


Fig. 7.1: Block Diagram of Simple and Creative 220V Water Turbine Permanent Generator

The solar panel converts the incident sunlight into electrical energy which is sent to the generator(induction motor) through a switch. The capacitor stores the energy from the solar panel and through this stored charge the motor starts to rotate initially. After the motor starts to rotate the switch is turned off disconnecting the supply from the solar panel and later the motor rotates from the water that is being pumped from the water pump. The water pump itself runs on the power generated by the motor. Later the total generated power is sent to the sockets and voltage & current sensor. The power generation details are shared with the DBMS for data handling through the MC with ESP8266 Wi-Fi module and displayed through the internet of things.

HARDWARE DETAILS:

INDUCTION MOTOR: 220V, 1200rpm, 2Amp.

CAPACITOR: 220V 2.5 microfarad (μF).

WATER PUMP: 200-250V, 50Hz, 2Amp.

SOLAR PANEL

TRANSFORMER: 12-0-12V, 2A.

SOFTWARE DETAILS:

ARDUINO UNO BOARD & IDE SOFTWARE

MC with ESP8266 Wi-Fi MODULE & DBMS

7) RESULTS AND CONCLUSIONS

Overall the proposed system is capable of generating (200-220V) of output voltage by using renewable energy resources such as water and solar energy.

In conclusion, the project of developing a simple and creative 220V water turbine generator offers a promising and sustainable solution for electricity generation. By harnessing the power of flowing water, this system provides a renewable energy source that reduces reliance on fossil fuels and contributes to a greener future.

The water turbine generator demonstrates its potential in various applications, ranging from off-grid power solutions in remote areas to decentralized power generation for individual households and small communities. Its scalability and customizability allow for adaptation to different water flow rates and power requirements, making it a versatile choice for diverse settings.

8) SCOPE FOR FUTURE WORK

The future scope for a simple and creative 220V water turbine generator is promising, with several potential advancements and opportunities:

- **Efficiency Improvements:** . Research and development efforts can focus on improving turbine design, blade materials, and generator technology to optimize energy conversion and increase overall system efficiency.
- **Miniaturization and Compact Designs:** . Miniaturized systems can be suitable for individual households, small communities, or portable applications, providing a convenient and sustainable energy solution.
- **Integration with Energy Storage:** Integrating the water turbine generator with energy storage technologies, such as batteries or capacitors.
- **Remote Monitoring and Maintenance:** The use of remote monitoring technologies, such as IoT-based sensors and connectivity, can enable real-time monitoring of the water turbine generator's performance. This allows for proactive maintenance, early fault detection, and optimized operation, ensuring optimal efficiency and reliability.
- **Hybrid Energy Systems:** Water turbine generators can be combined with other renewable energy sources, such as solar or wind, to create hybrid energy systems.