DEVELOPMENT OF A SOLAR POWERED WATER JET CLEANER FOR D.A. DE ARO MACHINE SHOP

Design Project

SHERWIN RAY P. PONIENTE
RONALD Y. ROLDAN

College of Engineering and Information Technology
CAVITE STATE UNIVERSITY
Indang, Cavite

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SHERWIN RAY P. PONIENTE
RONALD Y. ROLDAN
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ABSTRACT

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The solar panels can generate electricity without any waste or pollute on, or dependence on the Earth's natural resources once they are constructed. It has no moving parts so they are very reliable and have a long-life span. Solar panels are also relatively easy to install and have very low maintenance to generate power where it is needed to transport and distribute power long distance remote areas. The solar cell is a device that takes energy of sunlight and converts it to electricity. This tremendous energy from the sun is abundant, and has been powering the earth for billions of years – plants, redistributing and refreshing water supplies and ultimately creating other forms of energy (such as fossil fuels) that largely power our civilization today. The potential for using the sun to directly supply power needs is huge.

The design project featured a solar powered water jet cleaner that will help the economic and social capability of D.A. De Aro Machine Shop. The identified Small Medium Enterprise (SME) is one of the recipients of the extension activity of the department. Through the aid of solar power energy, the machine shop owner will have additional savings on the expenses due to decrease in the electric bill consumption that will be charged.

The design project was constructed using 2" diameter of G.I. pipe reinforced with 30" x 35" of G.I. sheet, 3/16" x 1" angular bar and marine plywood. The inverter and

charge controller cabinet has a dimension of 47" x 20" x 10. It was installed with bolt mounted at the top of the frame of the design project to provide durability for the project and stable movement when operational. Water jet cleaner was mounted at the second layer of the frame of the design project by using bolts and knots for stability of the component. On the side of the cabinet of the charge controller and inverter, the breaker is mounted using cable tie of the frame and for better display. The solar panel frame was made of angular bar using 3/16" x 1 with a dimension of 54" x 40" mounted in the roof of D.A. De Aro Machine Shop. The frame was mounted in the roof using bolts and nail with 8" angular bar to make it stable. The solar panel was mounted using bolts and knots in the corner of the frame, so that the panel would not fall down on the ground.

Based on the observation, in a previous day of evaluation the meter of the machine shop, the author notices the meter was so high, because of many equipment was used liked lathe machine, welding machine, water jet cleaner and other equipment's. But, when used the solar powered, the meter was not like in the previous day. Although a small thing new in the meter of the machine shop, for sure it helped to the owners decrease their own expenses. The savings percentage using solar panel system. Based on the previous record of D.A. De Aro Machine Shop they consume 7.1 kw daily and at the moment with the use of solar system it becomes 68 kw daily. Therefore, it saves electricity about 4.23% daily.

The design project was made for machine shop to help easier cleaning of different materials being repaired in the lathe machine and welding machine as well. The electrical power given by the alternating current source was lessen through the aid of solar power system technology. The design project was also the new system for the owner and worker of the machine shop and proved to be very useful for them.

The result of the study showed an efficient and outstanding feedback on the owner, worker and customer. The project rating given by the evaluators is an average score 4.5 which corresponds to an outstanding level of acceptance. This show that the project is useful in the machine shop.

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DEVELOPMENT OF A SOLAR POWERED WATER JET CLEANER FOR D.A. DE ARO MACHINE SHOP

Sherwin Ray P. Poniente
Ronald Y. Roldan

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INTRODUCTION

The automotive industry is a wide range of companies and organizations involve in the design, manufacturing, marketing, and selling of motor vehicles. Automotive jobs require the use of high-pressure water spray to cleaning parts that is solar powered water jet cleaner fitted together.

A solar power is a rapidly developing energy source around the world. The sun's light contains energy. The solar cell is a device that takes energy of sunlight and converts it into electricity. This tremendous energy from the sun is abundant, and has been powering the earth for billions of years – plants, redistributing and refreshing water supplies and ultimately creating other forms of energy (such as fossil fuels) that largely power our civilization today. The potential for using the sun to directly supply power needs is huge. Machine can be belt to combine energy-efficient design and construction practices and renewable energy technologies for a net zero machine. In effect, the machine will conserve