Environmental Education in Action: Community-Higher Education Partnership to Tackle Waste Issue
Case Study: Creating Green Waste Shredder Machine for Sustainable Environment at Local Community

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Introduction

Household green waste materials in the form of unwanted vegetables from the kitchen, leaves and branches from yard trimming can create problems when they are not handled properly. They can take up a lot of space and cause threat to the public health. However, this waste is potential material to process easily into compost. Community in Siwalankerto near Petra Christian University (PCU) campus has made compost from their kitchen green waste. From the beginning, PCU has been involved in training to make compost in relation with educating this community regarding sustainable environment through waste reuse. As the need for bigger amount of the waste, a shredder machine is required for the green waste.

Introduction

Objective

At present, the people of Siwalankerto’s motivation to pay attention to the environment of their village has been increasing. it is necessary to increase the techniques and equipment of organic fertilizer production. This need is related to the hope that in the future it can process organic fertilizer more productively.

Method

As need for bigger amount of compost increased, a shredder machine is required for the green waste. Therefore, a team of faculty member and students from mechanical engineering department and center for sustainable energy studies to build this shredder machine.

The Machine is developed based on the mechanical design Principles and Pugh’s Concept Selection Method.

Result and discussion

This machine has developed and work by shredding the green wastes with blades that rotate.

It has 2 different power sources that can be chosen according to the wish of the operator as the requirements from the community. They are manually drive with human power with the same principal as pedaling a bicycle and using a gasoline motor to function as a driving force.

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Conclusion

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The team has successfully developed the machine that fits the community need.

The machine works by shredding the green wastes with blades that rotate manually and is powered by cycling its motor.

With this machine, Siwalankerto community can create a sustainable environment that leads to zero green waste.

This machine has been realized and handover has been made to Siwalankerto RT-04 / RW-05.

Thanks!

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