CALIFORNIA SCIENCE & ENGINEERING FAIR
2018 PROJECT SUMMARY

Name(s)
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Project Number
38543

Project Title
Pollination Buggy: An Innovative Device that Pollinates in a Safer, Efficient and Easier Way

Abstract

Objectives/Goals
People are forced to hand pollinate 100% of the apple trees in China. In many parts of the world bees are dying out and in some parts of China bees are extinct. People are getting paid to pollinate plants by hand. They use paint brushes to scoop out the pollen but this is an inefficient way to pollinate plants. Many of the pollen gets wasted and it is injury prone. The objective is to build a functioning prototype that can collect and disperse pollen in a safer, easier and more efficient way compared to the paintbrush.

Methods/Materials
DC motor, Batteries, Wires, Casing Material, Filter paper, DPDT switch, Conical Entrapper (my design), Brush, Fan. To test how much wastage of pollen there is, the pollen will be collected from a male flower by the device. Then the pollen will be sprayed on a sheet of white paper. After spraying the pollen on a white sheet of paper, the diameter of the sprayed pollen shouldn#t be larger than the diameter of the flower.

Results
Testing indicated that there was good flow control in both directions.
When the device was tested on flowers there was no wastage that could be seen with the naked eye during collection. The diameter of the dispersed pollen was smaller than the diameter of the flower in multiple trials.

Conclusions/Discussion
The device, consisting of three main components, successfully collected and dispersed pollen. The pollinator met all the design criteria. It#s ideal to use when pollinating by hand (as of now: future phases will make the device autonomous). The device can pollinate flowers safely. The data shows that the diameter of the patch of pollen dispersed is smaller than the diameter of the flower so the device is efficient. The device it easy to hold so the chances of injury decreases by a large amount.

Summary Statement
A new pollinator that is safer, efficient and easy to use has been created and tested.

Help Received
I designed, built, and performed the experiments myself. My parents referred me to trustable websites.