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DESIGN AND CONCEPT OF BLUETOOTH BASED PESTICIDE SPRAYER ROBOT

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ABSTRACT

Agriculture is a profession of many tedious processes and practices, one of which is the spraying of insecticides in the vineyards. A typical vineyard requires extensive spraying every 4-5 days in the summer and every 3-4 days in the rainy season. The conventional methods are: a person carrying a sprayer and manually actuating a lever to generate pressure and pump the pesticide through a tube or a mobile vehicle carrying an inbuilt compressor and sprayer unit which has to be manually driven by a human operator. These methods are fuel consuming and susceptible to human errors. Another major drawback in human operated systems is that the operator is exposed to the harmful chemicals while spraying. Long term exposure, as in this case, can be extremely detrimental to the operator'shealth. This is a project which can be viewed as a viable alternate to these methods. The Bluetooth Based Pesticide Sprayer Robot is a device which sprays pesticide in any given vineyard with almost nil human assistance. The device is powered using an onboard battery which brings down the running cost. The control of the device is achieved using an inbuilt microcontroller unit which is programmed to respond to the bluetoothdevice.

INTRODUCTION

Pesticide

A pesticide is any substance or mixture of substances intended for preventing, destroying, repelling or mitigating any pest. Though often misunderstood to refer only to insecticides, the term pesticide also applies to herbicides, fungicides, and various other substances used to control pests. Pesticides also include plant regulators, defoliants and desiccants.

Need ForPesticide

The industrialization of the agricultural sector has increased the chemical burden on natural ecosystems. Pesticides are agrochemicals used in agricultural lands, public health programs, and urban green areas in order to protect plants and humans from variousdiseases.

Pesticides are mainly used in agriculture for preventing, destroying, or controlling any pest, including unwanted species of plants or animals, causing harm during or otherwise interfering with the production of crops or in public health protection programs in order to

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protect humans from vector-borne diseases, such as malaria, dengue fever, andschistosomiasis.

Theterm„Pest"isparticularlyusedforcreaturesthatdamagecrops,livestock,and forestry. Insecticides, fungicides, herbicides, rodenticides, and plant growth regulators are typicalexamples.

These products are also used for other purposes, such as the improvement and maintenance of non-agricultural areas like public urban green areas and sport fields. Furthermore, there are other less known applications of these chemical substances, such as in pet shampoos, building materials, and boat bottoms in order to eliminate or prevent the presence of unwantedspecies.

METHODOLOGY

In our present life we are using manual sprayers which are harmful to the humans life. With the help of the above proposed system we can overcome the problem. The device is powered by a storage battery, by using the Bluetooth device we send instructions to the receiver section and operation of the prototype takes plays. It consists of five relays, four of which are used to operate the DC motors for movement and another one to operate the diaphragm pump for spraying the vineyards. With the help of this system we can overcome the problems which are faced earlier and it has greater advantage in future with this advancedtechnology.

DESIGN AND ASSEMBLY

PROTOTYPE

RESULTS

• Since this can be controlled from anywhere without working in the field and being exposed to pesticides, it will be a profit for thefarmer.

• He will stay unaffected by his healthcondition.

• Health safety for farmers, pesticideapplicators.

• Saved effort and ease ofuse.

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•An efficient performance of using minimum amount of pesticide for spraying an area.

• Achieves better coverage of difficult targets than conventional spraying.

• Pesticide used in conceptual model with electrostatic sprayer is upto 10 times less than conventionalspraying.

• Using less pesticide per acre increases worker safety and also reduces the potential for environmentaldamage.

• Increased spray efficiency, lower economic costs, greater safety and less damage to environments.

CONCLUSION

Existing system does not have minimum requirements for human needs such protection from pesticides regarding health issues, consumption of solar energy, no fuel consumption, does not create any pollution and so on. In this project the above requirements are fulfilled with the advanced technology by sending instructions with the Bluetooth device and this project provides greater advantage in future. The proposed system of the prototype results that it was successfully able to fulfill the human need for spraying the pesticide in vineyards. While comparing with the previous pesticide sprayers this is more efficient and we can overcome health hazards.

FUTURESCOPE

The solar sprayer is mainly used for spraying liquefied pesticides. It can also be used as automatic spray painting robot. The developed system can be used for spraying the fertilizer, fungicides. The pesticide sprayer operates with minimal pollution. The same technique and technology can also be extended for all types of power sprayers in future we have a greater advantage with this advanced technology.

REFERENCES

[1]“Int J Environ Res Public Health”, -published online 2011 on May06.

[2]“Pesticides Literature Review”, - The Ontario College of Family Physicians, Toronto, Ontario M5H 2T7,Canada.

[3]“Agricultural development, Pesticide application and its impact on theEnvironment”.- International Journal of Environmental Research and Public Health.

[4]“Evaluation of Electrostatic Sprayers for Use in a Personnel Decontamination Line Protocol for Biological Contamination Incident Response Operations, Assessment and Evaluation Report”, - National Homeland Security Research Center, U.S. Environmental Protection Age, Research Triangle Park, NC27711.

[5]“Design and Operation of Agriculture Based Pesticide Spraying Robot”, Amruta Sulakhe, M.N. Karanjkar, Department of Electronics and Telecommunication, Shree Tuljabhavani College of Engineering, Tuljapur, Osmanabad, India.