TECHNICAL ASSISTANT TO FARMERS BY AN INSECT DETECTOR

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ABSTRACT

In order to protect the crops from harmful insects and flies, an IOT based insect detector and defender could be developed. The device uses a sensor which detects the harmful insects and flies and after detection the transducer produces UV sound and defend it.By this product, the farmers will yield the crops in an effective manner without any losses due to harmful insects and flies.

Keywords: *Acoustic Sensor,Microcontroller,Transducer.*

1. INTRODUCTION

Agriculture is the science and art of cultivating plants and livestock.It is the key development in the rise of human civilization,whereby farming of domesticated species created food surpluses that enable people to live in cities over one third of the world workers are employed in agriculture.India is the second largest country in producing highest agricultural output but,in recent days, agriculture is getting down and the farmers are facing many problems such as inadequate of water, soil fertility and plants affected by the insects and harmful flies. In such a way, various pests (insects, nematodes) each year cause crop yield losses of 20-40%. The exact percentage of yield lossses due to insects varies a lot depending on several factors, such as time of attack and potential crop protection measures. In some cases, insects can harm the crop protection completely and cause significant losses for farmers. Furthermore,the economic impact of insects on crop production is not only measured by the cost of damage on crops, but also by the resources spent on crop insect protection. In general, pests are universally recognised threat that reduce plant yield and severe infestation can even kill plants and destroy the whole crop production. Therefore, insects represent a serious problem in food and fibre crop production. Due to this, the farmers get a great disappointment. In order to protect the cropsfrom harmful insects and flies, an IOT based insect detector and defender could be developed.

OBJECTIVES

• In order to protect the crops from harmful insects and flies, an IOT based insect detector and defender could be developed.

• The device uses a sensor which detects the harmful insects and flies and also used for crop disease detection. Since early detection can successfully control disease, farmers use modern farm measures to protect their crops.

• For this case, an acoustic sensor is used which works by monitoring the noise level of the insect pests. In acoustic sensor, the wireless sensor nodes connected to a base station are placed in the field.

SCOPE

In our struggling world, farming is the major part but in recent days, agriculture is getting down and the farmers are facing many problems such as inadequate of water, soil fertility and plants affected by the insects and harmful flies.In such a way, various pests (insects, nematodes) each year cause crop yield losses of 20-40% In some cases, insects can harm the crop protection completely and cause significant losses for farmers. In order to protect the crops from harmful insects and flies, an IOT based insect detector and defender could be developed. By this product, the farmers will yield the crops in an effective manner without any losses due to harmful insects and flies.

2.HEADINGS

1. INTRODUCTION

1.1Objectives

1.2 Scope

2. HEADINGS

3. IMPLEMENTATION DETAILS

3.1 Sound probe

3.2 Audio amplifier

3.3Micro controller

3.4Transducer

3.5Solar cells and panel

4. FIGURES AND TABLES

5. CONCLUSION

6. ACKNOWLEDGEMENTS

IMPLEMENTATION DETAILS

3.1 Sound probe

This is used to detect the sound produced by the insects in the field area.

3.2*Audio amplifier*

The detected sound is captured and passes to the micro controller without any back ground noises.

3.3Micro controller

It confirms the presence of the insect from the detected sound pattern.

3.4Transducer

After the confirmation, the transducer produces the UV sound to defend insects.

3.5 Solar cells and panels

Normally solar panels are devices used to absorb the sun rays and convert them into electricity or heat. For providing energy to the above components, the Solar cells and Panels are used.

WORKING PRINCIPLE

Acoustic Detector is used to detect the insects or pests in the field area by its sound. It works by monitoring the field area and identifies the infestation area. Once the Sound probe detects the

sound of insects in the field, it sends the sound to audio amplifier which then sends to the Micro controller. Finally the information is reached to the transducer which then produces the UV sound waves to defend the insects. As the sound waves are produced with the highest hearing capacity of the insects, the insects will fly off or destroys. All the components which we have used such as Acoustic pest detector and transducer requires very low energy consumption. Thus for providing the energy source to these components, the Solar Panels are used.

3. FIGURES AND DIAGRAMS
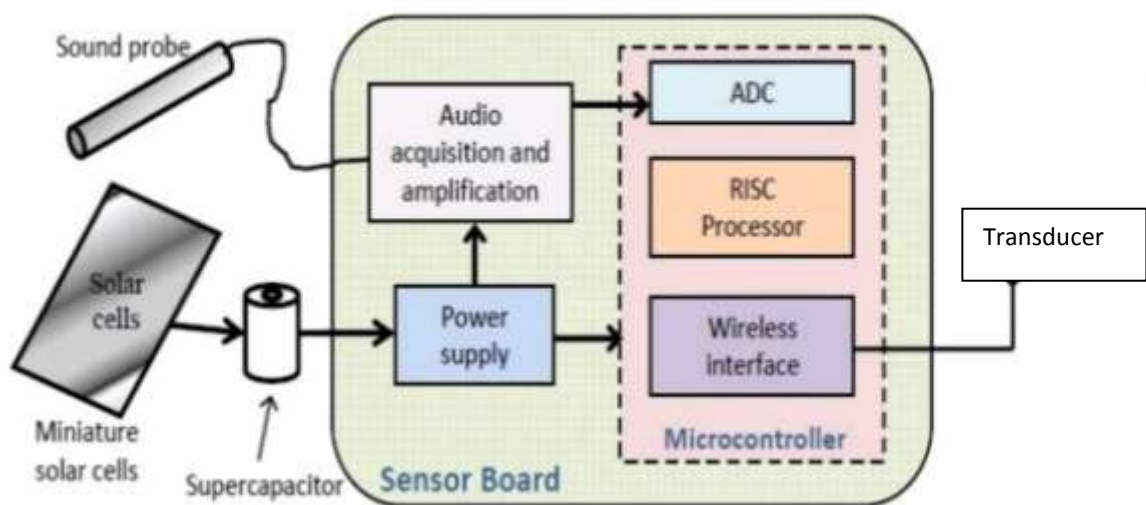
4. CONCLUSION

By using this product, the farmers will get the effective production of yield without any losses. The crops will not get any damage caused by harmful insects and Flies. All the components which we have used such as sound probe, amplifier, Microcontroller and transducer requires very low energy consumption, the Solar panels are used.

5. ACKNOWLEGMENTS

and granular synthesis that operate in this domain, based on real-time phase vocoding [van der Heide, 1994]. At present we are able to modify a sound's spectrum and duration independently, and are working towards being able to perform pitch transposition independently of the spectral envelope (formant structure), thus allowing one to change the pitch of a sound without seriously altering its timbral quality. Additionally, we are exploring techniques for smooth sample looping and cross-fading between sounds.

REFERENCES

1. Audio Spectra by means of Frequency Modula- tion" Journal of the Acoustical Society of America 21(7), 526-534.

2. Dolson, M. 1986. "The phase vocoder: a tutorial",

3. Computer Music Journal, 10(4), 14-27

4. Gordon, J. and Strawn J. 1987. "An introduction to the phase vocoder", Proceedings, CCRMA, Department of Music, Stanford University, February 1987.

5. Haddad R, and Parsons, T. 1991. "Digital Signal Processing, Theory, Applications and Hardware",

New York: Computer Science Press

6. Heide van der, E. 1993. Private communication.

7. Lindemann, E., Starkier, M., and Dechelle, F. 1991. "The Architecture of the IRCAM Music Workstation." Computer Music Journal 15(3), 41-49.

8. Lippe, C. and Puckette, M. 1991. "Musical Per- formance Using the IRCAM Workstation",

Proceedings of the 1991 International Computer Music Conference. San Francisco: International Computer Music

Association.

9. Moorer and Berger, 1984. "Linear-Phase Bandsplitting: Theory and Applications", Audio Engineering Society (preprint #2132), New York: 76th AES convention 1984.

10. Nieberle, R and Warstat, M 1992. "Implementation of an analysis/synthesis system on a DSP56001 for general purpose sound pro- cessing", Proceedings of the 1992 International Computer Music Conference. San Francisco: In- ternational Computer Music Association.

11. Puckette, M. 1988. "The Patcher." Proceedings of the 1988 International Computer Music Confer- ence. San Francisco: International Computer Music Association.

12. Puckette, M., 1991. "FTS: A Real-time Monitor for Multiprocessor Music Synthesis." Music Conference, 420-429, San Francisco: International Computer Music Association.