

An e-Agriculture System Model for Organic Cultivation of Onion

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ABSTRACT: The technology importance has been a great support for making decision in various field especially in agriculture. Traditional methods that are practised by the farmers aren't effective in the least, to feed the growing global population. This means that the farmers start using harmful pesticides to increase the yield. This practice poisons the food being cultivated and also affects the fertility of the soil in long run. Therefore, the main aim of this proposal is cropping onion in a field with two type of soils (Black soil, Red soil) without using any harmful pesticides. There is a growing need to dismantle the usage of harmful pesticides in agriculture. To overcome with this harmful affect our focused idea helps the farmer from those affects, regarding this rest is proposed to collect data as voice from farmers about the process of cultivating onion in organic manner, so it will prevent the diseases by using organic pesticides. Then the collected voice will be fetched to machine. So that the farmers can get clear idea about the cultivation process. The major merits of this project, they can approach the text in tamil, so it can be flexible to all farmers.

I.INTRODUCTION

The technology importance has been a great support for making decision in various field especially in agriculture. The growing demand for agricultural products has raised the expectations about the benefits of the technology being used in agricultural field. This affects the agriculture practice a lot and the land remains barren with fertility. Organic agriculture is a production system that relies on ecosystem management rather than the flow of external agricultural inputs. It considered potential environment and social impacts by eliminating the use of synthetic inputs and replacing them with site-specific management practices that maintain and increase long-term soil fertility, employment opportunities and mitigation and adaptation to climate change. Organic agriculture is practiced worldwide by 1.2 million producers in 141 countries, with production of organically grown food continuing to steadily increase by 15% per year. C.Nagarajan et al [2,4] studies While most of the organic markets are in developed countries, developing countries are becoming important suppliers as organic practices are particularly suited for the conditions of their farmers, especially smallholders living in rainfed areas. The other significant factors, such as environment and economics of organic management, which translate into ecological intensification, are hampered by a lack of appropriate agroecological knowledge. The main goal of the project is cropping onion in an field with two type of soils(Black soil, Red soil) without using any harmful pesticides. The need to acknowledge the harmful effects of pesticides usage is skyrocketing. To overcome with this harmful affect our paper helps the farmer from those affects, for this purpose we had collected the data as voice from farmers about the process of cultivating onion in organic manner so it will prevent the diseases by using organic pesticides. Then the collected voice will be fetched to machine. So that the farmers can get clear idea about the cultivation process. The major merits of this project, they can approach the text in tamil, so it can be flexible to all farmers. The rest of the paper is organized as follow, Chapter 2 discuss the system design, chapter 3 discuss the result and discussion, chapter 4 conclude the paper.

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II. SYSTEM DESIGN

This proposed system is designed with Python Software. This paper presents a e-agriculture data of onion.

IMPLEMENTATION

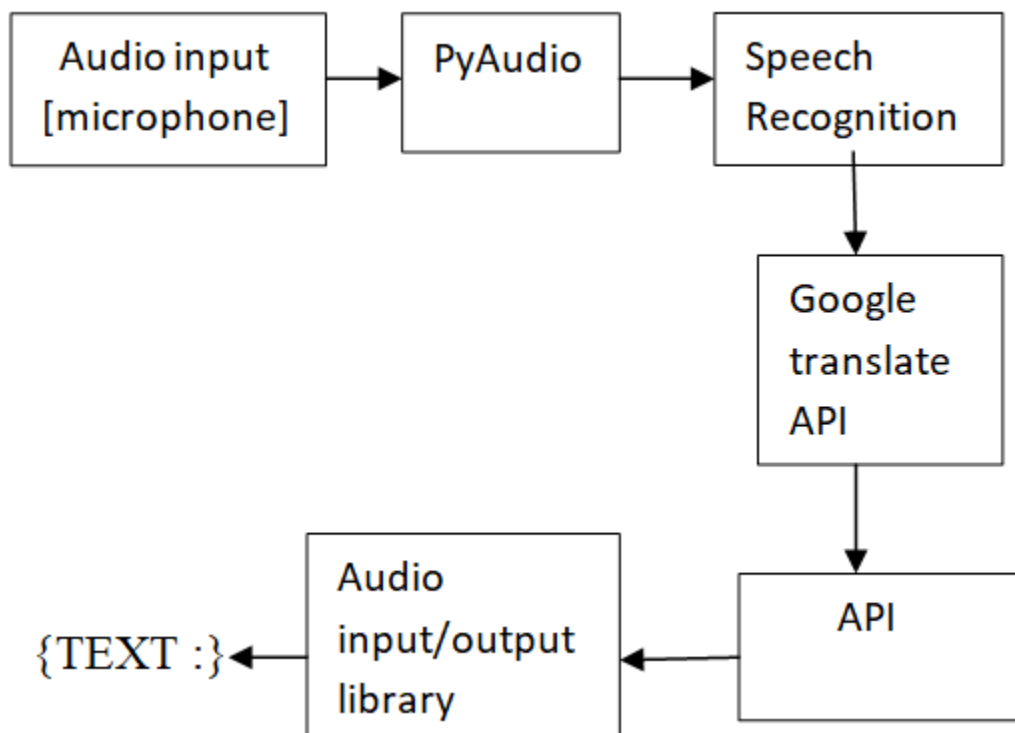


Figure I: Flow diagram of the proposed work

The operation of individual unit of the block diagram is described as follows

AUDIO INPUT[MICROPHONE]

Voice collected from different farmers about the process of cultivation of onion. These voices are collected by using microphone, that stores the stored voice into readable text

PYAUDIO

PyAudio is a software that specializes with speech to text transcription. The transcription of speech to text is automatic and uses machine learning (ML), by pressing the microphone icon, to enable the start and stop transcription dictation. Usually

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all the dictated speech is simultaneously transcribed as the user speech. This helps the future generation to stay healthy through organic farming of healthy through organic farming of healthy onions.

SPEECH RECOGNITION

Speech recognition is the process of identifying the spoken words and converting it into text. python language supports numerous speech recognition engines and APIs, includes Google speech Engine, Google cloud speech API, Microsoft Bing voice depends on PyAudio, which you can install from the package manager

GOOGLE TRANSLATE APPLICATION PROGRAMMING INTERFACE

This is a application programming interface that swiftly translates the tamil audio voice into tamil text according to the user's requirement and the API is flexible to translate in application.

AUDIO INPUT/OUTPUT LIBRARY

PortAudio provides a simple API for recording and playing audio using a plain callback function or a blocking read/write interface. The example programs that have been included are playing sine waves, processing audio(guitar fuzz) as input, recording and playback of audio, list of available audio devices.

TEXT

Speech recognition is actually a library that performs speech recognition in python language. This supports several engines and APIs, in both online and offline. Google cloud speech API enables the developers to convert the voice into text by applying sophisticated neural network model, and similarly it is easy to use APIs as well.

III. RESULTS AND DISUSSION

The process of growing onion is collected as audio(voice input) from onion farmers. The audio being fetched into the machine, uses PyAudio software. PyAudio is a speech(audio) to text transcription software that provides simultaneous transcription of audio files using machine learning. The users can quickly access the system and this easy to access approach is enables through a microphone icon to start and stop audio dictation. And this speech automatically gets transcribed into the words as a user speaks.



Figure 2: OUTPUT

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IV. CONCLUSION

In the proposed system, the machine learning concept analyze the crop in two type of soil (red soil, black soil) by using organic manner by without using any artificial pesticides. The harmful pesticides affect the human health and reduce the growth of soil level. To overcome this impact, our focused idea is about the collecting of voice from the different farmers about the organic cultivation and the collected voice is fetched to pyaudio. The Google Translate API recognize the voice from pyaudio and translate it in to tamil text. To conclude, our project provides a better way to cultivate onion through organic farming, by provisioning access to information regarding organic onion cultivation to the future generation.

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