BioGecko

Vol 12 Issue 03 2023

ISSN NO: 2230-5807

DYNAMIC QUALITY ANALYSIS USING NEURAL NETWORKS IN HORTICULTUR

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ABSTRACT

Agricultural application have made over thousands years and the entire process dependent on labour. The dependency on the labour increases the time process. For the farm which has larger area, it takes more number of labors to cut-down the flowers. It consumes more time and the cost of production increases, The accuracy will be less, The labour will not pluck the flowers completely and they will not differentiate/distinguish the healthy flowers. As this project comprises the detection and monitoring in horticulture. The webcam captures image using image processing technique and detects the flower. It uses multiple technique like AI, ML. It distinguish the healthy and faded flowers, It calculates the distance between plant and camera to know the minimal spacing. It detects and alert if any intruders enter the farm, It detects the fire in form field and alert message will be sent into farmer. By using this technique, it reduces the risk of farmers in farmland

INTRODUCTION

Agricultural application have made over thousands years and the entire process dependent on labours. The dependency on the labour increases the time process. For the farm which has larger area, it takes more number of labours to countdown the flowers. It consumes more time and the cost of production increases, The accuracy will be less, The Labours will not pluck the flowers completely and they will not differentiate/distinguish the healthy flowers. As this project comprises the detection and monitoring in horticulture. The webcam captures image using image processing technique and detects the flower. It uses multiple technique like AI, ML. It distinguish the healthy and faded flowers, It calculates the distance between plant and camera to know the minimal spacing. It detects and alert if any intruders enters the farm.

METHODOLOGY

Real-time cameras use computer vision, functions, and AI algorithms to capture real-time frames of an image in a video. Yolov5 is a per-trained transfer learning model that leverages AI, computer algorithms, and functions to recognize and categorize real-time events. For instance, the model uses tenser flow and keras frameworks for computation, real-time dimensional metrics calculations, and class prediction. examples include fire detection, alert person detection, and flower classification. The Yolov5 is for computing, real time calculations of dimensional metrics, and class prediction. A pre-train model with many characteristics and highly computational neurons is called the Yolo. architecture for computing, analysis, and images. Better prediction and more reliable classification are provided by this. Here Our main focus is on machine vision.

BLOCK DIAGRAM

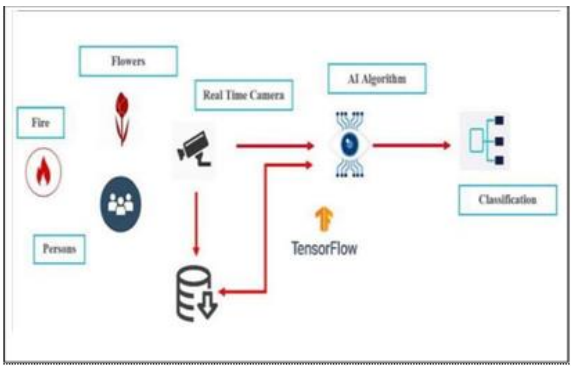

Figure 1: Block Diagram

YOLOV5 is a pre-trained transfer learning model that leverages AI, computer algorithms, and functions to recognise and categorise real-time events. For instance, the model uses tenser flow and keras frameworks for computation, real-time dimensional metrics calculations, and class prediction .examples include fire detection, alert person detection, and flower classification. The Yolov5 is for computing, real-time calculations of dimensional metrics, and class prediction. A pre-train model with many characteristics and highly computational neurons is called the Yolo. It provides Better prediction and more reliable classification are provided by this.Here our main focus is on Machine Vision.

SYSTEM ARCHITECTURE

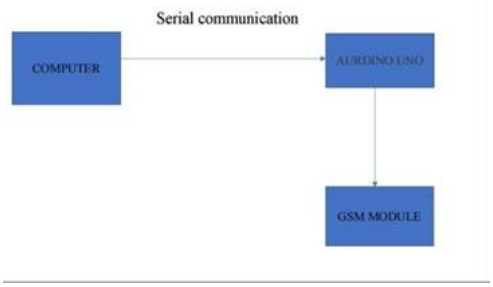

Figure 2 : System Architecture

The system Architecture Mainly consists of computer which is serially connected with the Aurdino Uno which inturn it is connected with the GSM module.The Objectives such as classification of flowers, person Detection and Fire Detection after achieving those objectives, the alert message for Person detection and fire will be directed to the Aurdino which Serially connected with the PC and the message will be triggered to the GSM, the GSM will send the alert message to the mentioned Phone number.

CONTROL FLOW DIAGRAM

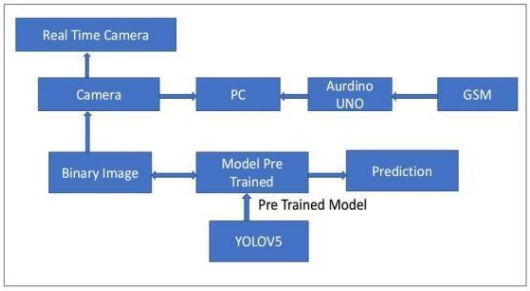

Figure 3: Control Flow Diagram.

The Control Flow diagram mainly describes the functionality of the model. YOLOV5 is the Pre trained model which has trained some of the data sets depending upon the objectives ,Then once after the predictions are done the model will be pre-trained and it will in the form binary image format (in the form of 0's and 1's) to the camera which captures real time image, where the camera is connected to PC, Once after capturing image (such as Rose(healthy and faded), person detection ,Fire detection) ,it will direct to the GSM module via Arduino finally the alert message will be sent to the given mobile number.

FLOW CHART

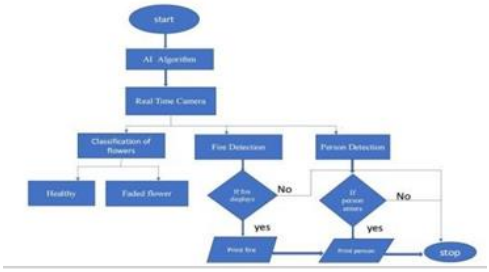

Figure 4: Flow Chart.

The Flow chart mainly indicates the flow of program. Whenever the program starts executing the data sets will be trained using YOLOV5. The Real time Camera will capture the image of the flower and decides whether its healthy or not, then it checks for the fire if it finds Fire in the farm field then it prints fire as a alert message, Likewise if it find s any person in the farm field then it prints person as a alert message and sends to the preferred cell phone number using GSM module it finishes each and every step and stops executing.

RESULTS

Figure 5: Circuit Connection.

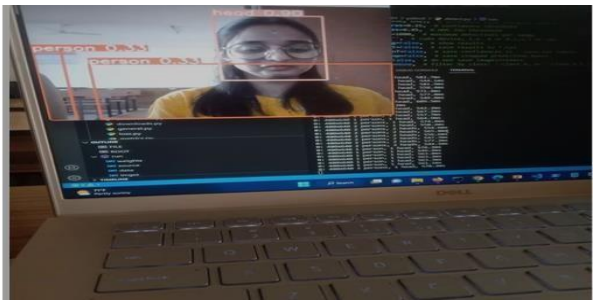

Figure 6: Person Detection.

Figure 7: Detection part of faded rose.

ACKNOWLEDGEMENT

We express our sincere gratitude to our Director Dr. G T Raju, principal, SJCIT, Chikkaballapura, for giving us the opportunity to pursue our studies. It is a great privilege to record our deep sense of gratitude to HOD of ECE Department, Dr. B N Shobha for supporting us throughout our career and for the equipment provided to carry out this work successfully. We also express our deep gratitude to Prof. Dr. Bhaskar S. guide for his valuable support and guidance.

CONCLUSIONS

Agricultural application have made over thousands years and the entire process dependent on labours. The dependency on the labour increases the time process. For the farm which has larger area, it takes more number of labours to countdown the flowers. It consumes more time and the cost of production increases, The accuracy will be less, The Labours will not pluck the flowers completely and they will not differentiate/distinguish the healthy flowers. As this project comprises the detection and monitoring in horticulture. The webcam captures image using image processing technique and detects the flower. It uses multiple technique like AI, ML. It distinguish the healthy and faded flowers, It calculates the distance between plant and camera to know the minimal spacing. It detects and alert if any intruders enters the farm, So this Project helps us to achieve all these Objectives.

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