"Image Processing Based Implementation of Unmanned aerial vehicle (UAV) for crop monitoring Using Drone Technology"

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Abstract: *Increasing crop productivity is the most challenging issue in India so we usingDrone technology. Drone technology is the best device as compared to other devices. Drone is small in size and having the ability to fly without any pilot. Crops,soils and folded areas images are captured through drone camera.There are lots of advantages in different fields as like agriculture for better products in urban areas andsurveillance for highly security sensitive areas such as presidents house, nuclear plants,military areas, commercial areas and tracking for criminal activities in smuggling of illicit materials, vehicle tracking. To avoid human's health problems when they spray manually uses are help to spray pesticides. UAV drone technology isutilizing in domains and bodies that is aerial imaging armed forces, logistics, emergency services, and agriculture. In this paper we focused onthe Implementation of Unmanned aerial vehicle (UAV) for inspection, measuring in crop monitoring.*

Keyword: *Object tracking, Drone technology, Image processing, image analysis.*

I. Introduction

As we know India is an agriculture-based country so overall agriculture can affect its economy conditions[1]. Yamaha developed the first UAV model. The drone can perform the works where former or any person cannot do their work related to their field are agriculture like terrace rice fields and fruit plantation in mountainous regions[3,4] to be reached. The drone can perform several tasks in numerous field,but now we are discussing on especially agriculture field like spraying, planning,and food processing sector across the value chains [8,9]. The drone can assist farmers in a range of task from observing,planning crop, monitoring and measuring the crop field areas,soil and field analysis and so on.Drone helps farmers to see their field from sky.it helps to such as irrigation problems, soil variation, pest, and so many plant diseases. Drones also helps former when they are not able to spray insecticides in their field, due to many reasons like health problems, money problems ,workload ,time limitation, weather problems so UAV can perform all above work in a very short time and with 100 percent accuracy and also save the money as well asit will do its fine works due to its robotic nature and camera property .So we can also say that UAV save money, time, labor problems, former health, etc. In agriculture hardware operation are mostly depends on accurate aspects such as range of UAV, weight, payload, costs, and configuration [5,6]. Before using the UAV in agriculture we have already tested and evaluated more than 300 models [2]. Techniques and central elements concerned to make a mini autonomous and mini unmanned rotorcraft vehicle, That is the development of hardware features, mixes with the software, autonomous flight monitoring, mechanics modeling, and executions. In the previous few decades, an important load NASA's star power-driven expert [7,8]and used as a picture assortment stand to determine the 3500ha low plantation in Hawaii. Subsequently, a coffee value and little weight use, VIPterofor web location specific vinery organization by taking sixty-three multispectral photos in 10min of flight and MK-Okto for the achievement of multispectral and current imaging [10,11]. To extend the flight time of UAV mistreatment by an optical maser power beaming equipment. Associate mechanics area, calibration and edge phases of UAV is finished by related integral spinoff dominant rule. The photos were processed and analyzed supported NDVI[12,13]. results clearly are the denote of the conditions of the crop. One of the other strategies came that is a sprayer system. Sprayer system connected in UAV for insecticides spraying. UAV help ofa sprayer system provides a platform for pest control and vector management [14,16].UAV is an exact site exact presentation for big crop areas. For large area of spraying,uses the help.Monitoring the crops and spraying pesticide uses has developed automatic drone system and sprinkling system with a multispectral camera[15]. In the lower region of the UAV, sprinkling system is attached there is the nozzle which is attached by pesticide tank for sprinkle the pesticide towardsdownstream [9]. Mainuses camera monitoring the crop field then scans all the crop fields and generates the map. This map helps to know the situation of the crop then farmer calculates which types of pesticides and fertilizers are useful on the crop.

II. Related Work

Drone Technology has been studied for crop monitoring.In 2016 the authors have proposed the technical analysis of unmanned aerial vehicles. Measured his real applicability to the agricultural process. 250 models are analyzed and summarized for this process and the results are achieved by synthesizing this process to acquire the best understanding of better applicability in agricultural areas. In 2017 the authors have proposed his paper Present management in agriculture required quick information about plants, crop and fast reaction to unwanted occurrence such as the feature of pests. Drones for spraying plants allow for quick execution of plant protection managers on the developing areas. Examine the results of rotors his rotary speed of moving drone. Information achieved will offer a chance to plan plant safety processes with the use of drones. Pesticide applications preparing by technological process means of UAV measured that environments of UAV using may be different than characteristic sprayers. In 2018 the authors have measured his articles to increase the crop productivity in developing countries. they show that the agriculture fields many loss is produced which faces for former. the loss comes to the pests and insects that is reduced the productivity of the crops. fertilizers and pesticides used in agriculture fields kill the insects and pests to improve crop quality. Unmanned aerial vehicle (UAV) is used the remove this problem. They spray the pesticides and avoid the human health problems and they spray manually. It is easy to handle and remove labors difficulty.

III. Crop Monitoring

Crop monitoring is an important operation. The services of field monitoring include-
i. Monitoring of the vegetative growth.
ii. Production monitoring.
iii. Inspection of management of crop and soil.
iv. Geo-referencing areas.
v. Verification of the available land for cultivation.
vi. Re-evaluation.
vii. Recording the incidence of pests and diseases.

Crop monitoring established many levels. Start form individual former level to national level. Different levels have done the specific roles of monitoring. In the farmer, the level monitorsthe health of crop as per growth stage.National level gives an approximation of total pre-harvest crop approximation, the scope of dependency on import and export circumventing in national commodity trade. In International level total availability of food grain and different countries prospects etc.

IV. Crop Spraying

Sprayer system connected inUnmanned aerial vehicle for pesticides spraying.UAV with a sprayer structure provides a platform to pest control.In the lower region of UAV,the sprinkling system isinvolved there is the nozzle which is attached by pesticide tank for sprinkle the pesticide towards downstream. Sprinkling system has two models one is sprinkling system and second is the controller. Sprinkling system has spraying content like pesticides, fertilizer, and nozzle for spraying. The controller used to activating the nozzle of the sprayer.The help of nozzle pressurizes pressure pump to flow the pesticide. According experts say that drones have five times faster as compared to other machinery.

V. Measurement Results

Analysis of the full study of former we saw that from 2010 to 2015 many former death .reason of death mostly production of food gain, chemicals, health's issue, etc. In this graph, we can see that different states total former death rates. Former attempt suicides just because of they give his full manpower and money but last some reasons not gain maximum food and money for the survivor. So former attempt suicides.

YEAR	TOTAL SUICIDES
2010	15964
2011	14027
2012	13754
2013	11772
2014	12360
2015	12602
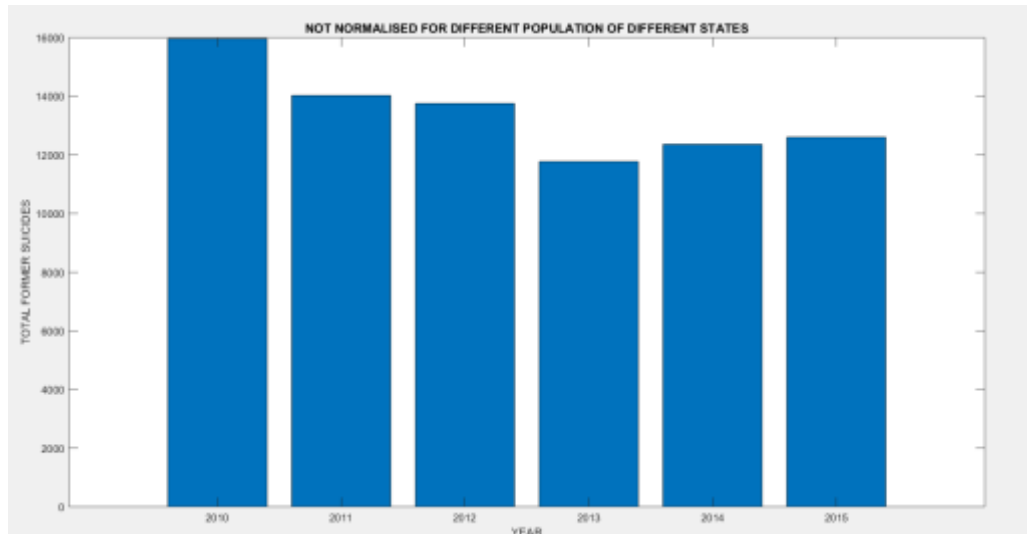
VI. Conclusion

In this paper, we examined that different type of former die day to day because ofthe lack of small plot land and taken a loan from money lenders to overcome this problem we develop UAV technology. UAV is the newest technologies that involved precision agriculture.It increases productivity, former health. UAV isa help when the former is not potential to spraying of fertilizers and pesticides on crops and a shortage of labor. UAV camera takes the image and study by the geographic indicator. UAV also completed a faster and easy job for spray. Finally, we say that UAV is directly proportioned to money and health.The help of drone we reducing the former die and also increasing the production and increasing the income of former.

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