Nivartaka -An Eco-friendly multipurpose vehicle

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Abstract: -- **"Nivartaka" is a multipurpose Unmanned Aerial Vehicle (UAV) is an important technology. The quadcopter is built using bamboo sticks which is light and strong serves as a multipurpose vehicle. The application which is developed in this research has a purpose to simulate the condition in the various zone for spraying the pesticides. Various missions can be done using UAV such as surveillance in unknown areas, forestry conservation, and spying on enemy territory. It is used in medical field for transporting medicines and drugs. The platform used in our experiment is a simple quadcopter mounted with an APM 2.5 control board. A GPS module and the wifi telemetry unit is incorporated in this UAV which would include live video broadcasting system. The robotic vehicle will search and recognize our combatants in the battleground and locate their location. It would also help us to navigate and supply food, medicines and other necessary amenities in the mountain areas where an emergency occurs.**

Keywords— APM2.5,GPS, Telemetry,Andriod application;

I. INTRODUCTION

This drone helps to spray the fertilizers/pesticides easily with the help of the drone. In the olden days the farmers was not able to spray the fertilizers/pesticides over a large area of land so we have introduced this NIVARTAKA drone which helps the farmer to spray the fertilizers/pesticides all over the farming land. At first the drone is interfaced with the Arduino Board with the help of many components. It can be operated easily with the help of android app. This app is connected with the drone's WIFI module with the help of a security password. Later when it connected it gives a two times beep sound saying that it is ready to fly. Now with the help of NIVARTAKA DRONE app we can control the rotations and the movements of the drone. Once the work is done we can press the land button so that the drone stops its operation. We have used the Li-Po batteries to supply the power for the ESC's and to the motors. To power up the Arduino mega 2560, WIFI module, HMC5883l magentometer, GYRO MPU 6050 we have used the power bank of 2300mAh,batteries of 1.2V(8 batteries),to power up the camera we are using 9V battery. The GPS 6050 is used to map the land area of the farming land and helps to map only the farmers land. We have the servo motor which is used as a switch here. An immersable pump is kept inside the fertilizers tank to pump the fertilizers and spray it over the land.

II. RELATED WORK

The concept of military UAV's is to have the various aircraft systems work together in support of personnel on the ground. The Air Force has recently begun referring atleast to larger UAS like Predator, Reaper, and Global Hawk as Remotely Piloted Aircraft (RPA) to highlight the fact that these systems are always controlled by a human operator at some location. The integration scheme is described in terms of a "Tier" system and is used by military planners to designate the various individual aircraft elements in an overall usage plan for integrated operations. . An immersable pump is kept inside the fertilizers tank to pump the fertilizers and spray it over the land. The Tiers which is not referring the specific models of aircraft but rather roles for which various models and their manufacturers competed.
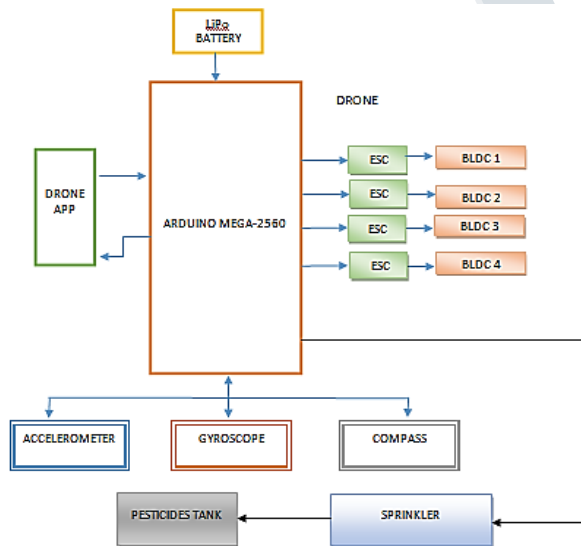
III. DESIGN

When designing a multivehicle, there are many different frame designs and configurations to consider with some having advantages over others. The most common multivehicle frame is probably the quadcopter. . These configurations relate to the number of motors, but with several configurations the frame orientation can also be modified to either +, X, spider or V. By changing the number of motors, the most significant and obvious

difference between each configuration is the increase in available thrust as the number of motors increases. Strapping high power motors to a quadcopter may achieve similar thrust to an multivehicle; however, doing so would require large, slow-spinning props that are likely toinduce low frequency oscillations into the platform due to slower response times from the increased momentum ofeach prop

- ➢ No multithreading.
- ➢ Lower clock speed.
- ➢ The languages required are C, C++.
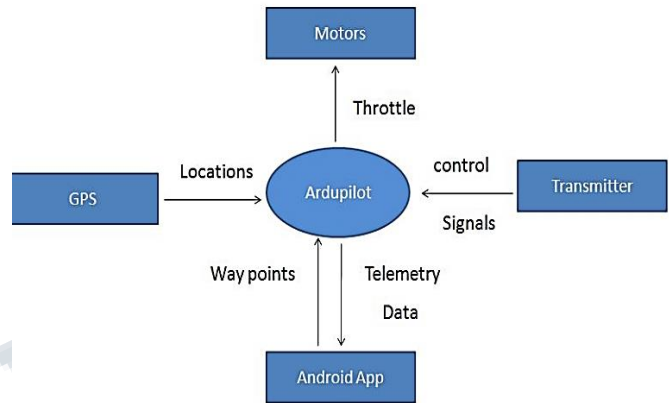- ➢ Common protocols are I2C communication, serial communication

A. BLOCK DIAGRAM
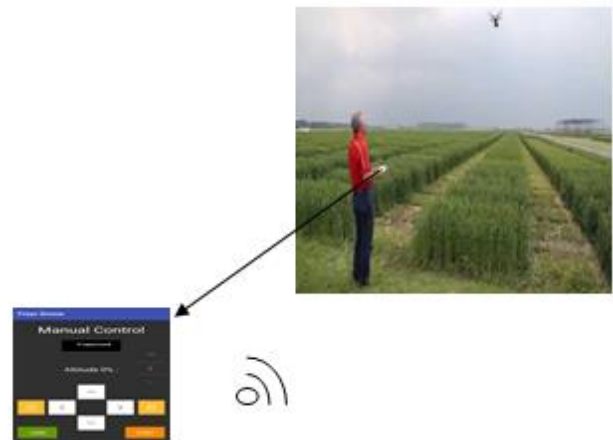

IV. WORKING PRINCIPLE & MODE

The detailed flow and operation of the devices and android, the navigation in the device and it's working. The drone which we created is a quadcopter which works based on Bernoulli's principle.ie. Pressure is directly proportional to force.

B.DATAFLOW DIAGRAM

When we on the radio receiver the two arms in front and back of the drone perform push operation and other arms which is in left and right side perform pull operation which helps in lifting the drone up. The three arms in the drone rotates in clockwise direction and other three arms rotates in anticlockwise direction which help in balancing the drone. To move in drone in left and right directions.

V. RESULTS

VI. CONCLUSION

The scope of the project is the best option for helping people in agricultural field. Set waypoints to deliver the load and the drone traverses it and does the required job, or manually control the drone. Wireless camera for easy monitoring .Better way to reach people to help on time. Here the user can control the drone using an android app and he can connect to the app using Wi-Fi module which is

interfaced in the drone. It will precisely route the land area of that particular people, land using GPS no matter shape of the field and the job done

REFERENCES

- J. T. K. Ping, A. E. Ling, T. J. Quan and C. Y. Dat. 2012. Generic unmanned aerial vehicle (UAV) for civilian application-A feasibility assessment and market survey on civilian application for aerial imaging. in 2012 IEEE Conference on Sustainable Utilization and Development in Engineering and Technology (STUDENT). pp. 289-294.

- S. Bernardini, M. Fox and D. Long. 2014. Planning the Behaviour of Low-Cost Quadcopters for Surveillance Missions. Twenty-Fourth Int. Conf. Autom. Plan. Sched.