



Tamil Nadu Agricultural University
Coimbatore – 641 003



Dr. M. Rajavel, Ph.D.,
Public Relations Officer
Mobile: 94890 56730

Phone: 0422 - 6611302
Fax: 0422 – 2431821
E-mail: pro@tnau.ac.in

To
The Editor,
Sir,

Date: 11.05.2023

I request that the following message may kindly be published in your esteemed daily:

Tamil Nadu Agricultural University received Design patent

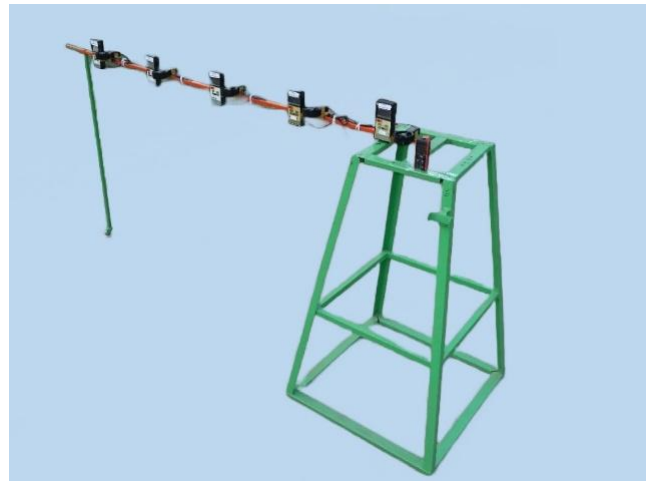
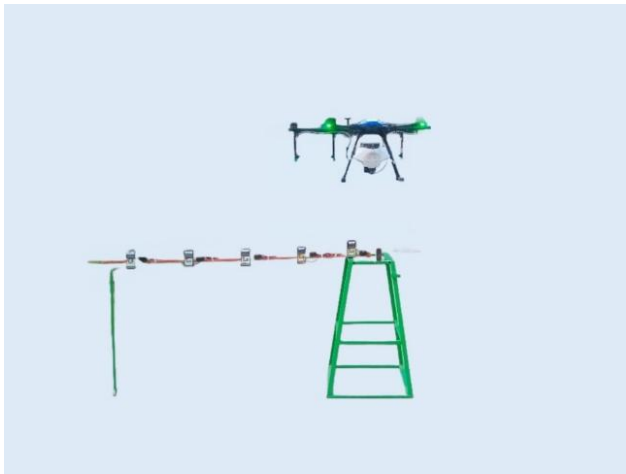
Tamil Nadu Agricultural University has received design patents for UAV downwash Airflow Test Rig granted by the Office of the Controller General of Patents, Designs and Trademarks under the Union Commerce and industry ministry.

UAV Downwash Airflow Test Rig

The use of drones or unmanned aerial vehicles (UAV) for crop spraying against diseases, pests, and weeds has increasingly become important in recent years. To measure the downwash airflow pattern generated by the rotor propeller of an UAV, a downwash airflow test rig was designed and developed. This UAV downwash airflow test rig is a prototype and unique in that it can be used to collect the downwash airflow of UAV sprayers at different hover heights and payload weights. The designed test rig is useful for investigating the parameters and distribution laws of downwash airflow velocity of UAV sprayers in outdoor conditions.

The designed and developed test rig consist of four numbers of mild steel (MS) rectangular hollow pipes of size 50 mm x 25 mm x 2 mm as a base structure and supported vertically with four numbers of equal MS angle iron of 40 mm x 40 mm x 3 mm. Another four numbers of MS rectangular hollow pipe (50 mm x 25 mm x 2 mm) are placed on top of the support frame, which accommodates the Light Detection and Ranging (LIDAR) distance meter instrument and airflow measuring anemometer points at the desired positions. A 2.5 meter length of hollow MS square pipe (20 mm x 20 mm x 2 mm) welded with MS flat iron of size 25 mm x 2 mm clamp for holding the anemometer impeller and display is provided.

Five anemometers are placed horizontally on a 2.5 m long MS square pipe at intervals of 0.00 mm, 500 mm, 1000 mm, 1500 mm and 2000 mm perpendicular to the flight direction of the UAV. One end of the mounted anemometer M.S. square pipe is nut and bolted to the central part of the test rig frame, and the other end is supported vertically with an M.S. square pipe (20 mm x 20 mm x 2 mm) stand with a base wheel for easy rotation in 360 degrees. The downwash velocity of drone can be studied and can be used for development of other attachments to drone.



Public Relations Officer