



# VIMAANA AEROSPACE TECHNOLOGIES

## KRISHIRAJ 1.0



The Spraying Maestro

# KrishiRaj 1.0

KrishiRaj 1.0 is an agriculture spraying drone with 10 Liters spraying capacity equipped with smart sensors for both obstacle and terrain avoidance. Drone operates in both autonomous and manual mode. The UAV consists of Intelligent flight modes and terrain hugging features.



**7-8min**  
For 1 acre  
coverage



**+ 20 min**  
Flight Time



**500 m VOS**  
Transmission  
Range



**15 m/s**  
Maximum Speed



**10 m**  
Operational  
Height



**2-5 m**  
Spray Swath

Smart sensors for terrain &  
obstacle avoidance

Live feed using integrated  
camera



Battery failsafe, loss of  
communication, and fence breach

Prevent direct contact of  
chemicals to farmers

# Technical Specification

## Krishiraj 1.0 Specifications

UAV Weight with battery and max. payload	28.9Kg
UAV Type	Multicopter with Hexacopter Configuration
UAV Size with Propeller	2m x 1.8m x 0.5m (LxBxH)
Endurance	Without Payload : 22 mins Discharging Payload : 18 mins
Range of live transmission (LOS)	500m
Operational Speed	5 m/s
Maximum Speed	15 m/s
Maximum operating altitude (AGL)	30 m AGL (Above Ground Level)
Functional Temperature Range	0°C to +50°C
Propulsion	Battery Powered Electric Propulsion
Dust & Drizzle Resistance	IP53 rating (NABL Certified)
Technical Life of UAV (Landings)	Minimum 500 landings (Self Certified)
Wind Resistance	Upto 5m/s (18kmph or ~9knots)
Field Clearance Required	5m x 5m (Flat land area)
Launch and Operation	Vertical Take-off & Landing (VTOL)
Deployment Time	< 10 min (From assembling to take-off)

## Krishiraj 1.0 Specifications

Supported Nozzles	<ul style="list-style-type: none"><li>• Flat Jet Nozzle</li><li>• Centrifugal Nozzle</li></ul>
Operation Member	Maximum 2
Operation Modes	Manual and Autonomous
Area Coverage	1 acre per flight (10 litre), 2 flight per battery set (Fully charged to fully discharged)
Deployment Time	< 10 min (From assembling to take-off)
Failsafe Feature	<ul style="list-style-type: none"><li>• Auto-Return to Home and Land on Communication Failure (Both remote controller and Mobile app)</li><li>• Auto-Return to Home and Land on Low Battery</li><li>• Auto-Return to Home and Land on exceeding the UAV health parameters (Temperature, throttle limit of the system)</li><li>• On-board GPS with triple redundancy</li><li>• Auto-Return to Home and Land on Fence breach (Both Altitude and Range)</li><li>• Auto-Return to Home and Land on Geo-fence Breach</li><li>• Emergency Kill Switch</li></ul>
Flight Modes	<ul style="list-style-type: none"><li>• Stabilized Mode</li><li>• Emergency Mode</li><li>• Automatically land at particular location</li><li>• Auto-return and land mode (RTL)</li></ul>

## Payload Details

Payload	Sprayer Tank with 10 Ltr liquid capacity
Payload Supported	Liquid Pesticides, Water, Fertilizers, Plant Nutrients (Agro Chemicals)

## Ground Control Station (GCS) Software Features

Ground Control Station	<ul style="list-style-type: none"><li>• Remote Controller: 2420- 2480 MHz (OEM Certified)</li><li>• Range: 5km safe range (OEM Certified)</li><li>• Discharging time: 24hrs continues working with one charge</li><li>• Charging time: 2-3 hours from 0% to 100%</li><li>• Bluetooth plus USB</li></ul>
GCS app	<ul style="list-style-type: none"><li>• Monitoring Data: Sprayed area, plot area, flight time, battery voltage, Satellite counts, spray rate adjustment, etc.</li><li>• Live drone location on geo-map</li><li>• Saves map once downloaded at particular location (Auto-download)</li><li>• Field Report Generation after flight</li><li>• Live Video Data</li></ul>

## Equipment Detail

Detect & Avoid Capability	Available
Autonomous Flight Termination System or Return Home (RH)	Available
GNSS	Available
Geo-Fencing Capability	Available
Flashing Anti-Collision Strobe Lights	Available
Flight Control module (with Flight Data logging Capability)	Available

## Flight Performance

Hover Accuracy	Horizontal Direction +- 1 m Vertical Direction +- 0.5 m
Maximum Tilt Angle	30 Degree

<b>Maximum Yaw Speed</b>	<b>150 degrees/sec</b>
<b>Maximum Vertical Speed</b>	<b>6 m/s</b>
<b>Flight Modes and Functions</b>	<b>Full Autonomous , Semi Autonomous , Manual</b>

### **Power System**

<b>Capacity</b>	<b>22000 mAh</b>
<b>Battery Type</b>	<b>Lipo-6S (2 Battery Pack Connected in Series)</b>
<b>Life Cycles</b>	<b>Up to 300 Cycles</b>

### **Remote Controller**

<b>Transmission Range</b>	<b>500m or more</b>
<b>Frequency Band</b>	<b>2.400 - 2.483 GHz</b>
<b>Battery</b>	<b>Built-in 4000 mAh Li-Po 1 S or above</b>
<b>Charging Port</b>	<b>Micro-USB (5V-2A)</b>
<b>Antenna Gain</b>	<b>5 dBi or more</b>

### **Spraying System**

<b>Standard Operating Payload</b>	<b>10 KG</b>
<b>Material Used</b>	<b>Tank : Polypropylene Tube : PVC</b>
<b>Tank Volume</b>	<b>10 Liter</b>

<b>Spray Swath</b>	<b>2 to 4 m</b>
<b>Maximum Flow Rate</b>	<b>3.5 ltr/min</b>
<b>No. of Nozzles</b>	<b>4</b>

#### **Safety Features**

<b>Low Battery Warning</b>	<b>Return to home</b>
<b>Empty Tank Warning</b>	<b>Return to home</b>
<b>Break Point Intelligent Record</b>	<b>Return to home</b>
<b>Transmission Range Loss</b>	<b>Return to home</b>

# **Contact Us**

**Plot No. 22, Udyog Kendra EXTN-1 Sector Ecotech 3, Greater Noida,  
Gautambuddha Nagar, Uttar Pradesh, 201308**

**[www.vimaanatech.com](http://www.vimaanatech.com)**

**Business enquiries : [contact@vimaanatech.com](mailto:contact@vimaanatech.com)**

**Customer Support: [support@vimaanatech.com](mailto:support@vimaanatech.com)**

**Mobile: +91 9899170989**