# Curiosity Surveyor Mini UAV

OM UAV Systems

**Curiosity is a FULLY AUTONOMOUS Mini Unmanned Multicopter aircraft. It is capable of carrying a 400 Gram payload. The payload is a Day or Night Camera mounted on a gyro stabilized camera mount. Most cameras are under 300 Grams. The UAV is electrically powered with a very low dB level. The aircraft is fully autonomous right from Takeoff to Landing. The UAV is made of composite sheet and aluminum alloy.**

## Physical Specifications:

| | | |
|---|---|---|
| Size | : | 450mm x450mm |
| Height | : | 250mm |
| Flying Weight | : | 1990 Gms |
| Payload | : | 400 Gms |
| Propulsion | : | 150 Watt BLDC Motors @11.1 Volt X 4 |
| Propellers | : | 11x4.5 carbon fiber x 4 |
| Flying Battery | : | Lithium-Ion 11.1 Volt, 9600mAh |

## Capabilities:

- Fully Autonomous from Takeoff to Landing
- Can be programmed for 500 Gridpoints
- Can Loiter over the subject at any waypoint
- Has Manual over ride at any stage
- Can be 'Guided' to specific location during flight by clicking over map
- Can activate/deactivate any payload from the GCS
- Auto payload activation on reaching the waypoint
- Failsafe built in. Will 'RTH' if comm link is lost. Will 'Land' if battery is low

## Radio Control Link:

| | | |
|---|---|---|
| Encoding | : | Integrated Mavlink Protocol |
| Freq | : | 2400 Mhz |
| Channels | : | 8 |
| Range | : | 2.5 Km. (when airborne) |
| Display | : | Back-Lit Display |
| Battery | : | Battery: Li-Poly 11.1V, 2650 mAh (12 Hrs continuous |

## Video and Communication Link:

| | | |
|---|---|---|
| Type | : | Digital Wi-Fi Video |
| RF Power | : | 270 mW |
| Frequency | : | 2400 mhz, secured (20Mhz Channel) |
| Power Consumption | : | 100mA @12v |
| Video Resolution | : | 1280x720 pix |

Inlaid OSD showing critical flight parameters
Data and Video Recording on GCS

## Survey Camera:

The aircraft is fitted with a CANON Powershot camera which takes still pictures at the grid waypoints automatically. The pictures are then geo tagged using the flight telemetry log and then processed on a stitching software like Pix4D to form a 3D map that can be used for engineering purpose.

## Observation Camera:

Color Day and Low Light HD CSI fixed focus camera with HD video recording at 1280x720@30fps resolution and 75 deg FOV. Recordings are automatically stored on the GCS receiver module on a pen drive.

## Flying Characteristics:

| | | |
|---|---|---|
| Range | : | 2.5 Km * |
| Endurance | : | 24 Mins |
| Accuracy | : | Within 3 m of the programmed way point |
| Cruise Speed | : | 20 Km/Hr |
| Max Wind | : | 20 Km/Hr |
| Altitude Optimum | : | 200 Meters AGL |
| Altitude (AGL) | : | 300 Meters |
| Altitude Ceiling | : | 3000 Meters |

## Autopilot:

- Based on ARM Cortex M4 32 bit Processor @ 168 Mhz, running at 252 MIPS, on NuttX Real Time Operating System
- Triple redundant vibration damped IMU
- uBlox RTK GPS on Rover and Base
- HMC5883L 3-Axis triple redundant Magnetometer
- MS5611 Dual redundant High Resolution Barometer
- Onboard Micro SD card for Flight Data Logging
- Inbuilt heating for flying in very low temperatures


## Standard Pacakge:

- Curiosity Aircraft 1 Nos
- GCS consisting 1280x720 HD Video Display
- Android Tablet 7”
- Dual Omni Antenna for Communication Link
- Microprocessor based battery Charger
- Radio Control Box
- Canon Powershot Camera
- Mini Tool Kit
- ABS Carry Case

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