HOT ROBOTICS
University of Bristol

DJI Matrice 100

Available: 4 sets

Up to 35 mins flight time with max payload 1.2kg
12.4MP camera, up to 4K and HD videos

Factsheet

Kit contains
- Matrice 100
- Zenmuse X3 camera and gimbal
- Remote Controller
- 2 batteries and Charger
- Transport case

The Matrice 100 features dual parallel CAN ports and UART ports for additional components and the Zenmuse X3 camera and gimbal able to shoot 4K and HD videos and 12MP stills. Customised programmes and functionality can be added using the DJI SDKs.

Required Skills and Qualifications
- Permission for commercial operations (PFCO) for multirotor UAV
- Full Liability Insurance and Aviation Liability cover

Additional considerations
- The user will require an iPad, iPhone or Android device with a USB cable to connect to the remote controller
- DJI Go will need to be installed on the device, available on the app store

Cost

Dependant on duration of hire, support required & options selected

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DJI Mavic 2 Pro

Available: 2 sets

20MP/4K Hasselblad camera
31 mins flight time

Factsheet

Kit contains:
- Mavic 2 Pro
- Remote Controller
- 3 batteries and Charger
- Charging Hub and Car charger
- Transport Case

The Mavic 2 Pro was built for ease-of-use and fantastic image capture, with a 20MP Hasselblad L1D-20c camera with 4K 10-bit HDR support. In-built capabilities include ActiveTrack 2.0 object tracking with automatic obstacle avoidance and 1080p videos can be transmitted from up to 10km away and saved to your device.

Cost

Dependant on duration of hire, support required & options selected

Required Skills and Qualifications
- Permission for commercial operations (PFCO) for multirotor wing UAV
- Full Liability Insurance and Aviation Liability cover

Additional considerations
- The user will require an iPad, iPhone or Android device for the remote controller
- DJI Go4 will need to be installed on the device available on the app store
- The user will require an SD card Class U3 or above

DJI Goggles Racing Edition

Available: 1 set

HD video goggles for First Person View on the Mavic 2 Pro

Factsheet

Kit contains:
- DJI Goggles
- Charger
- Charging Cable

Required Skills and Qualifications
N/A

Additional considerations
- The user will require an iPad, iPhone or Android device for the remote controller
- DJI Go4 will need to be installed on the device, available on the app store
- The user will require an SD card Class U3 or above

For use with the DJI Mavic 2 Pro. With the DJI FPV goggles, you can get a bird's eye view of the world from the drone while staying perfectly safe on ground.

Cost

Dependant on duration of hire, support required & options selected

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DJI Mavic Mini

Available: 1 set

12MP camera up to 2.7K video

Factsheet

Kit contains:
- Mavic Mini
- Remote Control
- 3 batteries and Charging Hub
- Soft carry case
- Accessories

Weighing just 249g, this drone is lightweight, extremely compact and easy to use. With a 12MP camera able to take 2.7K video, HD transmission up to 4km, and up to 30 minutes flight time, the Mavic Mini is perfect for visual inspection and recording on the go.

Required Skills and Qualifications
- Permission for commercial operations (PFCO) for multirotor wing UAV
- Full Liability Insurance and Aviation Liability cover

Cost

Dependant on duration of hire, support required & options selected

Additional considerations
- The user will require an iPad, iPhone or Android device for the remote controller
- DJI Fly will need to be installed on the device, available on the app store
- The user will require an SD card Class U3 or above

Image © DJI 2020

DJI Matrice 600 Pro

Available: 1 set

Up to 32 minutes flight depending on payload
Max payload 5kg

Factsheet

Kit contains:
- Matrice 600 Pro
- Remote Control
- 12 batteries (2 flight sets) and charger

Required Skills and Qualifications
- Permission for commercial operations (PFCO) for multirotor wing UAV
- Demonstration of appropriate experience with similar types/weights of multirotor drone – Recent flight log and description of experience.
- Full Liability Insurance & aviation liability cover

Additional considerations
- The user will require an iPad, iPhone or Android device with a USB cable to connect to the remote controller
- DJI Go will need to be installed on the device, available on the app store

The Matrice 600 Pro is perfect for industrial applications. Its modular design allows easy customisation and mounting of additional modules. Customised programmes and functionality can be added using the DJI SDKs, opening up a world of possibilities.

Cost

Dependant on duration of hire, support required & options selected

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WingtraOne

Available: 1 set

Up to 59 minutes flight depending on flight plan and weather conditions
Sony 42mp full frame camera (down to 0.7cm/px)

Factsheet

Kit contains:
- WingtraOne and Camera (pre-installed)
- Ground station – tablet
- 2 pairs batteries, charger and discharger
- Transport cases

Optimised for mapping and surveying, the Wingtra One's phenomenal accuracy and speed combined with robust engineering and ease-of-use make for efficient, stress-free survey missions.

Required Skills and Qualifications
- Permission for commercial operations (PFCO) for fixed wing UAV
- Demonstrate currency through logs and details of at least 3 fixed wing flights conducted in the last 3 months
- Full Liability Insurance & aviation liability cover

Additional considerations
- Mission planning requires an internet connection
- Log no. of flights and duration of flight after use
- The user is required to have their own high-speed SD card

Cost

Dependant on duration of hire, support required & options selected

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Baby Shark VTOL Plane
Available: 1 set

Max 2.5 hours flight time, 1.5kg – 3kg payload
Optional Seeker-10 V2 HD Camera with 10x Optical zoom, 1080p HD video recording

Factsheet

Kit contains:
• Baby Shark VTOL Plane
• Radio Controller
• Telemetry datalink
• 2 sets batteries and charger
• Transport cases
Used for survey and mapping of large areas, the Baby Shark has a maximum flight of 2.5 hours and a maximum payload of 1.5kg to 3kg, perfect for mounting on additional sensors and components as required.

Required Skills and Qualifications
• Permission for commercial operations (PFCO) for fixed wing UAV
• *Significant experience flying a fixed wing UAV
• *Significant experience of operating Arduplane and Mission Planner
• Full Liability Insurance & aviation liability cover

Additional considerations
• The user will require a Windows based laptop or tablet running Mission Planner
• Flexibility for sensor integration
• Awareness of requirements for the storage and transportation of lithium polymer pouch batteries

Cost

Dependant on duration of hire, support required & options selected

A1 Robot Dog

Available: 2 sets

Up to 1.5H continuous walking time, 2.5H standing
Max speed 3.3 m/s
Max payload 5kg

Factsheet

Kit contains:
- A1 Robot Dog with LiDAR and HD camera
- 2 batteries and charger
- Remote Control

ROS-compatible dextrous robot dog with Real Time HD video transmission, dynamic obstacle avoidance and visual SLAM capability.

Required Skills and Qualifications
- Experience using UGVs
- Experience using ROS
- Full liability insurance

Additional considerations
- The user will require an Ubuntu based laptop with ROS installed

Cost

Dependant on duration of hire, support required & options selected

Image © Unitree 2021

Leo Rover

Available: 2 sets

ROS integrated, built on Raspberry Pi
Up to 4 hours nominal driving
Max payload 5kg

Factsheet

Kit contains:
- Leo Rover
- 1 battery and charger

Required Skills and Qualifications
- Experience using UGVs
- Experience using ROS
- Full liability insurance

Additional considerations
- The user will require an Ubuntu based laptop with ROS installed

A ROS-compatible lightweight and compact mobile robot system, with video streaming and driving UI ready out-of-the-box. With various hardware interfaces provided by the Core2-ROS microcontroller, the Leo Rover can be adapted for different applications.

Cost

Dependant on duration of hire, support required & options selected

Superdroid HD2 Treaded ATR

Available: 2 sets

ROS integrated, heavy duty treaded robot
Max payload 63kg

Factsheet

Kit contains:
- Superdroid HD2 Treaded ATR with front VLP-16 LiDAR and IR camera, battery integrated
- Charger
- Remote control

A ROS-compatible heavy duty treaded ATR able to climb over obstacles and up stairs. Equipped with an NVIDIA Jetson AGX Xavier single board computer, LiDAR, GNSS module and IR camera, this system is highly robust and can support autonomous indoor and outdoor missions.

Required Skills and Qualifications
- Experience using UGVs
- Experience using ROS
- Full liability insurance

Additional considerations
- The user will require an Ubuntu based laptop with ROS installed

Cost

Dependant on duration of hire, support required & options selected

GR1+ Gamma-Ray Spectrometer

Available: 1 set

10x10x10mm CZT detector with energy range from 30 keV to 3.0 MeV
Energy resolution <2.5% FWHM at 662 keV

Factsheet

Kit contains:
* GR1+ gamma-ray spectrometer
* Mini USB cable

Required Skills and Qualifications
* Experience using similar sensors
* Full liability insurance

Completely self-contained CTZ-based gamma-ray spectrometer with a built-in preamplifier, shaping amplifier, baseline restorer, pulse height digitizer, and HV supply.

Additional considerations
* The user will require a Windows based laptop with Kspect at minimum

Cost

Dependant on duration of hire, support required & options selected

Image © Kromek 2021

SIGMA50 CsI Scintillation Spectrometer

Available: 2 sets

2 in^2 CsI scintillator detector with SiPM
Energy resolution < 7.2% at 662 keV

Factsheet

Kit contains:
- SIGMA50 scintillation spectrometer
- Mini USB cable

Uses silicon photomultipliers (SiPMs) with up to 32.8cm^3 detection volume, packaged with HV supply, electronics, and integrated MCA and powered by USB.

Required Skills and Qualifications
- Experience using similar sensors
- Full liability insurance

Additional considerations
- The user will require a Windows based laptop with Kspect at minimum

Cost

Dependant on duration of hire, support required & options selected

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TN15 Thermal Neutron Detector
Available: 1 set

Room temperature detector with photo-sensor SiPM array
Equivalent to 100mm x 13mm Ø ³He at 4 atmospheres
Thermal Neutron sensitivity >50%

Factsheet

Kit contains:
- TN15 Thermal Neutron Detector
- Mini USB cable

Required Skills and Qualifications
- Experience using similar sensors
- Full liability insurance

Highly compact and portable device with built-in preamplifier, shaping amplifier, pulse discrimination and HV supply.

Additional considerations
- The user will require a Windows based laptop with Kspect at minimum

Cost

Dependant on duration of hire, support required & options selected

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Tracerco PED+ Dosimeter

Available: 4 sets

Detects X-rays and gamma rays in range 33 keV to 3 MeV
Dose rate range up to 100 mSv/h, 10 R/h

Factsheet

Kit contains:
- Tracerco PED+ Dosimeter
- Micro USB cable

Compact personal radiation monitor that can be used as a handheld survey meter with GPS and Bluetooth features

Required Skills and Qualifications
- Experience using similar sensors
- Full liability insurance

Additional considerations
- The user will require a Windows based laptop with DoseVision to set up the dosimeter

Cost

Dependant on duration of hire, support required & options selected

Heavyweight UGV Indoor Radiation Mapping Bundles

- High payload, up to 63 kg
- Autonomous mapping and collision avoidance
- ROS compatible

UGV Options		Sensor Options
• Superdroid HD2 ATR with 3D LiDAR	✚	• ROS-enabled Radiation Detector

Required Skills and Qualifications
- Experience using UGVs with similar systems
- Experience using ROS
- Full liability insurance

Additional considerations
- The user will require an Ubuntu based laptop with ROS installed

Cost
Dependant on duration of hire, support required & options selected

HOT ROBOTICS
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Heavyweight UGV Outdoor Radiation Mapping Bundles

- High payload, up to 63kg
- Autonomous mapping and collision avoidance possible
- ROS compatible

UGV Options	Sensor Options
• Superdroid HD2 ATR with 3D LiDAR and GNSS module	• ROS-enabled Radiation Detector

Required Skills and Qualifications
- Experience using UGVs with similar systems
- Experience using ROS
- Full liability insurance

Additional considerations
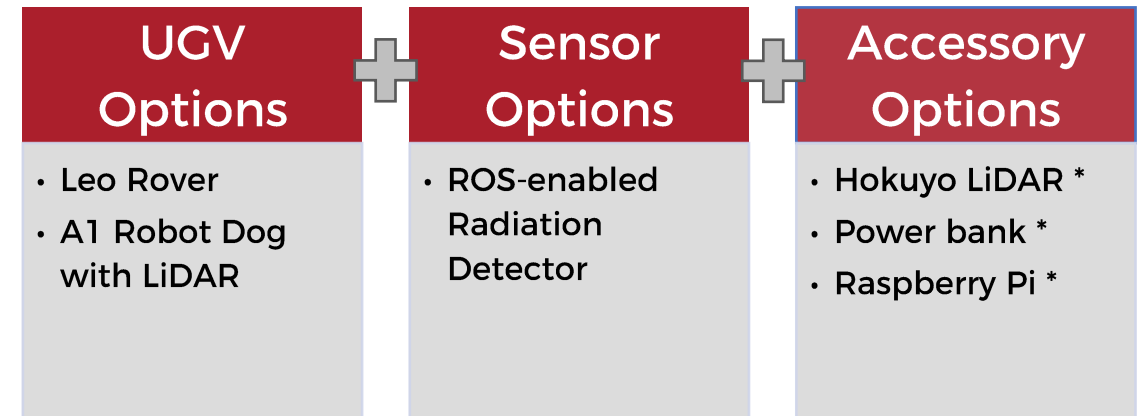- The user will require a Ubuntu based laptop with ROS installed

Cost
Dependant on duration of hire, support required & options selected

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Lightweight UGV Indoor Radiation Mapping Bundles

- Small payload, up to 5 kg
- Autonomous missions possible, depending on options chosen
- ROS compatible

UGV Options		Sensor Options		Accessory Options
• Leo Rover • A1 Robot Dog with LiDAR	+	• ROS-enabled Radiation Detector	+	• Hokuyo LiDAR * • Power bank * • Raspberry Pi *

* Required for Leo Rover

Required Skills and Qualifications

- Experience using UGVs with similar systems
- Experience using ROS
- Full liability insurance

Additional considerations

- The user will require an Ubuntu based laptop with ROS installed
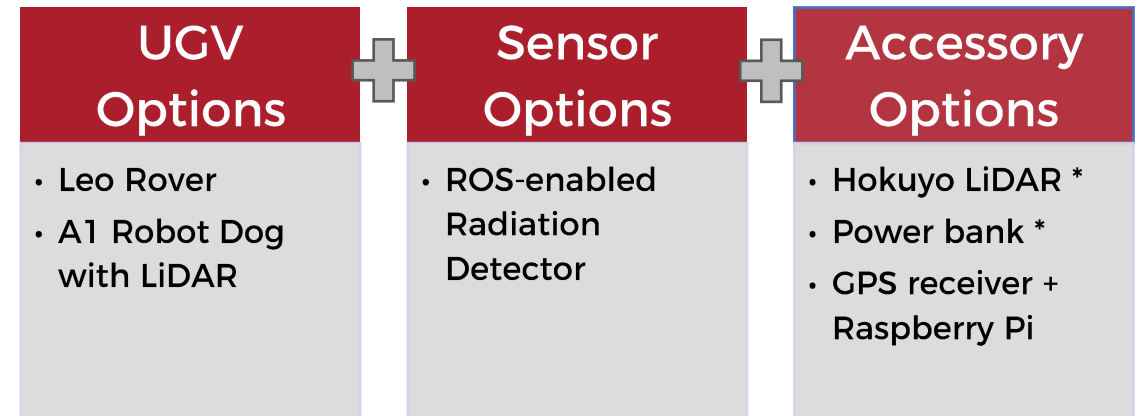
Cost

Dependant on duration of hire, support required & options selected

Lightweight UGV Outdoor Radiation Mapping Bundles

- Small payload, up to 5 kg
- Autonomous missions possible, depending on options chosen
- ROS compatible

UGV Options		Sensor Options		Accessory Options
• Leo Rover • A1 Robot Dog with LiDAR	➕	• ROS-enabled Radiation Detector	➕	• Hokuyo LiDAR * • Power bank * • GPS receiver + Raspberry Pi

* Required for Leo Rover

Cost

Dependant on duration of hire, support required & options selected

Required Skills and Qualifications

- Experience using UGVs with similar systems
- Experience using ROS
- Full liability insurance

Additional considerations

- The user will require an Ubuntu based laptop with ROS installed

Multirotor Radiation Mapping Bundles

- Up to 35 minutes flight time depending on payload and UAS option
- Autonomous radiation mapping possible with autopilot application

UAV Options		Sensor Options		Accessory Options
• Matrice 600 Pro • Matrice 100	+	• ROS-enabled Radiation Detector • SIGMA50 + AARM • GR1+ + AARM	+	• Anemometer • FPV Camera

Required Skills and Qualifications

- Permission for commercial operations (PFCO) for multirotor UAV
- Full Liability Insurance and Aviation Liability cover

Additional considerations

- If using the ROS-enabled Radiation Detector, user will require an Ubuntu based laptop with ROS installed
- The user will require an iPad, iPhone or Android device for the remote controller and an autopilot application for mapping

Cost

Dependant on duration of hire, support required & options selected

Image © DJI 2021

Photogrammetry Bundles

- Up to 25 – 27 minutes surveying per charge cycle for Mavic 2 Pro
- Up to 52 minutes surveying per charge cycle for WingtraOne

UAV Options	Accessory Options
• Mavic 2 Pro with 20MP/4K Hasselblad camera • WingtraOne VTOL with Sony RXRII camera	• Anemometer

Required Skills and Qualifications

- Permission for commercial operations (PFCO) for relevant UAV type
- For WingtraOne, demonstrate currency through logs and details of at least 3 fixed wing flights conducted in the last 3 months
- Full Liability Insurance and Aviation Liability cover

Additional considerations

- WingtraOne mission planning requires an internet connection
- Log no. of flights and duration of flight after use
- Mavic 2 Pro requires iOS or Android device to use with remote controller with DJI Fly and an autopilot application installed

Cost

Dependant on duration of hire, support required & options selected

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3D Scanning LiDAR bundles

• Approximately 20 minutes flight time depending on payload and weather conditions

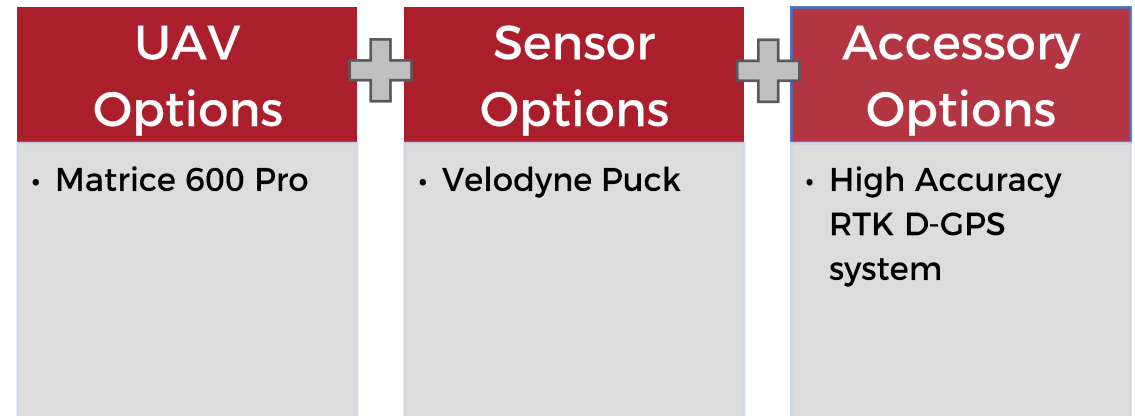| UAV Options	Sensor Options	Accessory Options
• Matrice 600 Pro	• Velodyne Puck	• High Accuracy RTK D-GPS system

Required Skills and Qualifications
• Permission for commercial operations (PFCO) for multirotor UAV
• Full Liability Insurance and Aviation Liability cover

Additional considerations
• The user will require an iPad, iPhone or Android device with a USB cable to connect to the remote controller
• DJI Go will need to be installed on the device, available on the app store
• User will require a laptop as ground station

Cost
Dependant on duration of hire, support required & options selected