

**Airborne Defence Research Organisation**

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**Airborne Defence Research Organisation**

**SUBMISSION TO**

**INQUIRY ON BUSH FIRE MITIGATION AND MANAGEMENT  
FOR FIRE SURVEILANCE AND MONITORING BY ADRO 1**

**DEAR SIR/MADAM**

***Our Profile***

***Airborne Defense Research Organization, a business name registered by Peter Jones and Glenister (Glen) Paul Davis, was set up to develop an Unmanned Aerial Vehicle (UAV) designated "ADRO1" specifically able to cope with the harsh Australian environment.***

***Peter Jones has extensive experience in forming, moulding and shaping plastics for industry. Specific experience in the aviation industries making Hornet and light aircraft windows. Glen Davis has extensive experience in motor vehicle and aviation industries, having built a land speed record attempt vehicle powered by twin Rolls Royce Perkins jet engines and achieving a test speed of 380 m.ph.***

**ADRO 1**

***The ADRO 1 UAV is a cost effective alternative to the use of manned aircraft, having greater flexibility and being able to operate in harsh environments commonly referred to as***

***"The dull, the dirty and the dangerous"***

*We based our design on the cost effective mid range sized UAV's carrying a reasonable payload that can be easily launched without a runway. ADRO1 can carry a large sensor array similar in size to the much larger US Predator Military UAV and include Electro optic (EO) and Infra red (IR) to give high-resolution image.*

*Operating at lower altitudes and at a lower cost per hour, ADRO 1 can deliver real time or near real time broadcast quality digital video data, including a video split in the case of film camera operation.*

*Sensors can record environmental and target information delivering the telemetry air to air i.e. for fire bombing operations or air to ground.*

*Telemetry may also be stored on board and sent back periodically or retrieved upon landing.*

## ***FIRE SURVEILLANCE AND MONITORING***

*The primary design objective of ADRO 1 was to carry out surveillance and Monitoring of bush fires and to be able to send high quality video and data to-*

- Fire command*
- The air attack supervisor*
- Fire head quarters*
- Fire bombing air craft*
- Fire trucks*
- Other relevant emergency organisations e.g. Police and emergency services*

## **ADRO 1 CAPABILITIES**

*Key features of the system are:-*

➤ *Ability to stay on station for long periods of time (Loiter) e.g. for up to 12 hours on days of high fire danger over areas that are considered a potential threat or that are close to plantations. This would compliment the current fire spotting program.*

➤ *Can be deployed in numbers, 1 Ground Station (GS) would control up to 5 air craft at one time.*

➤ *Give the GPS position of a fire.*

➤ *Send real time or near real time video footage, air to air or air to ground.*

➤ *Guide water bombers to there targets.*

➤ *Communication relay, e.g. send and receive information to and from fire trucks...*

➤ *Send video to a Local Area Command center at the fire for editing and retransmitting to the LAN and WAN networks.*

➤ *Video Transmission over LOS.*

➤ *Video Transmission 200nm any were in Australia.*

➤ *Transmit telemetry, giving weather information and environmental data.*

➤ *Data transmission air to ground, e.g. Transmit, receive (TX, RX) to the fire trucks, TX, RX to the Ground station (GS).*

➤ *Data transmission air to air e.g. Air attack supervisor Fire bombing Helicopter.*

➤ *GSM TX, RX Telemetry data.*

➤ *CDMA Telemetry data.*

➤ *Satcom data transmission.*

➤ *Communications relay.*

➤ *Fly in close proximity to the fire for more actuate information, or to verify the whereabouts of fire trucks or individuals.*

*The aircraft has a truly multy roll capability being able to be used for Maritime search and rescue and many other surveillance duties.*

*ADRO 1 can be deployed from a variety of locations either by a small catapult that can be carried in back of a ute, from small grass strip or road way close to the target or an airstrips like Mangalore airport and flown to the target.*

### **AIRBORNE TELEMETRY** **L3 COMMUNICATIONS**

*The airborne communications system we will be using is L3 Communications form the <sup>USA</sup>.*

*L3 is a well respected organization, supplying airborne telemetry to the Military and civil aviation, they have a local supplier based at Edinburgh airfield in South Australia with whom we are working on the project*

### **FLIGHT CERTIFICATION AND AIR OPERATORS** **CERTIFICATE**

*We have initiated the flight certification procedures for ADRO 1 through the Civil Aviation Safety Authority (CASA).*

*They have recently produced a document detailing UAV operations in controlled airspace, under Advisory Circular AC 101-1(0); Australia is the first Country to introduce civil UAV regulations in the World.*

*We have also submitted an application for an UAV Operators Certificate (OC) with CASA. This is required to operate UAV above 400 ft AGL or in controlled air space. This enables us to operate in controlled air space, such as a bush fire situation with other aircraft in the Local Area of Operations.*

*Conclusion:*

*Airborne Defence Research Organisation can offer a locally manufactured and supported cost effective UAV which will greatly enhance a fire fighting authority's ability to locate, define and monitor an Australian bushfire.*

*Yours faithfully,*

**Airborne Defence Research Organisation**

Peter Jones

Director

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