

DARK WING AERIALS

DRONES IN MARITIME



COMPANY BACKGROUND

Darkwing Aerials was founded in 2012, becoming one of the first fully licensed UAV companies in South Africa.

Darkwing quickly became a leader in the film industry, boasting an impressive client list. Darkwing broadened its scope to the Industrial sector in 2018, working in renewables, construction, maritime, telecommunications, security, mining, engineering and insurance.





INDUSTRY OVERVIEW

Operations carried out on the open ocean or close to shore always come with an element of risk. The safety of maritime workers is a primary concern and should be improved where possible.

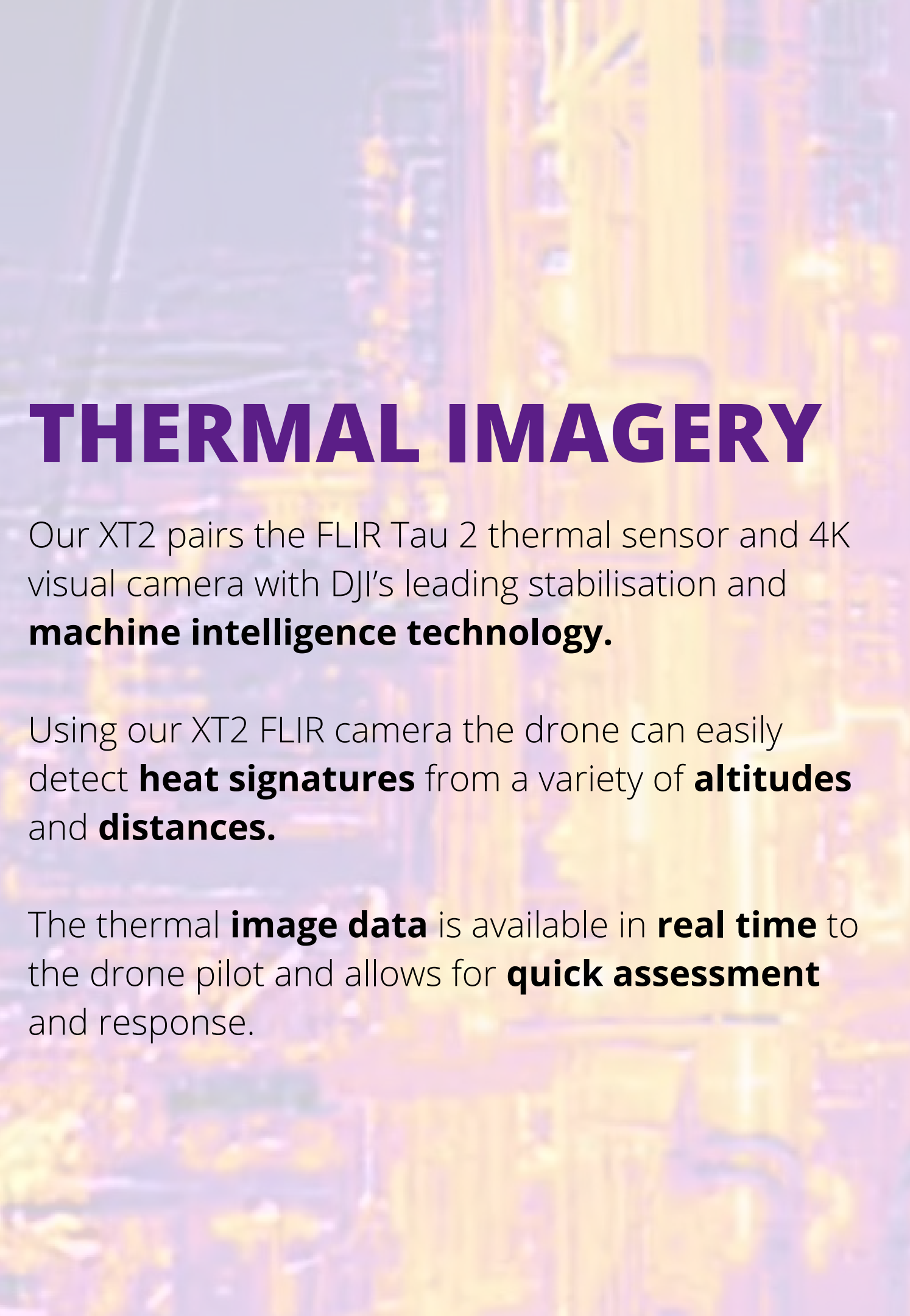
Multicopter drones provide a range of services that reduce the need for humans to do dangerous maritime assignments.

Darkwing Aerials has conducted several sophisticated offshore flight operations in a variety of maritime industries. These range from large ships to oil and gas platforms.

Drones can access any part of a ship or offshore platform to perform maintenance or inspections:

- Aerial paint inspection
- Aerial NDT testing

Aerial film and photography



THERMAL IMAGERY

Our XT2 pairs the FLIR Tau 2 thermal sensor and 4K visual camera with DJI's leading stabilisation and **machine intelligence technology**.

Using our XT2 FLIR camera the drone can easily detect **heat signatures** from a variety of **altitudes** and **distances**.

The thermal **image data** is available in **real time** to the drone pilot and allows for **quick assessment** and response.



AERIAL NDT TESTING

The Darkwing team together with **international robotics** companies, developed ground breaking technology to perform **Aerial NDT**.

This purpose built drone has **interchangeable inspection booms for UTM & DFT surveys**.

Mounting these sensors on our drones allow for **NDT testing** to be conducted on any **tall metal structure**.

AERIAL VISUAL INSPECTION

Adverse weather conditions can cause **surface damage** to structures over time.

These areas are can be difficult to access via the traditional routes of **rope-access** or erection of working structures such as **scaffolding**.

Darkwing's **drones** are **small** and **agile** enough to reach any area on a structure with ease.

With an **HD stabilised camera**, we can quickly capture images and cover every sector of the structure.

Using drones, **paint degradation** and **structural integrity** can quickly be established and proper **maintenance** arranged.



6K AERIAL VIDEO AND IMAGERY

Strong promotional material is very important for a company to connect with potential clients.

Darkwing Aerials has **extensive experience** with large scale film projects thanks to our professional film division.

We can provide film industry quality footage in **6K high definition** from a **variety of altitudes**.

This footage can also provide a useful **overview** of your company's **property** or current **state of equipment**.



A black and white photograph of a custom-built drone in flight. The drone is a quadcopter with a GoPro camera mounted underneath. It has a long, thin spray wand attached to its front arm, which is extended forward. A blue cable is connected to the drone's frame. The background shows a blurred view of a residential area with houses and trees.

AERIAL WASHING

Our surface preparation spray **cleaning** and **washing system**, the **Opus X8 SW** (Soft Wash), is built for cleaning **elevated surfaces** and limited **surface preparation** prior to coating.

The Opus X8 SW is a "Corrosion Innovation of the Year" award winner by the National Association of Corrosion Engineers (NACE) and Materials Performance Magazine for our creation.

PREVIOUS WORK: Offshore Maritime Aerial Insurance Inspection

Darkwing Aerials was contracted by a maritime transportation firm to conduct an **offshore aerial inspection**. One of their ships was towing a very specialised cargo over a great distance between the United States and India. The ship would be passing close by Cape Town as it rounded the tip of Africa. The firm wanted the special cargo inspected for insurance purposes given its long trans-Atlantic journey.

The cargo being towed was multiple sections of large diameter pipes. These were the biggest extruded pipes in the world at the time with a diameter of 3 meters. **Inspection drones** would be used to gain a **comprehensive analysis** of the pipes and tow ropes in their current state. The inspection would be in the open ocean and called for an **experienced drone crew and boat skipper**.

For this inspection our industrial inspection drone was used. It was equipped with the Z30 **optical zoom inspection camera**. The Z30 camera allowed our drone pilot to capture **highly detailed close-up** images of the pipes while maintaining a safe distance. Thanks to the unique perspective provided by the aerial images an **accurate damage assessment** could be made. Accurate inspection results are **critical for insurance assessments and claims**.



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