

Better robotics, better conservation

Introduction

An environmental team working for one of the largest Iron Ore producers in the Pilbara region of Australia was tasked with the impossible; obtaining important biological information about the health of certain vulnerable species, from inside a system of dangerous abandoned mine workings.

With no human access allowed for safety reasons, and future expansions hinging on effective monitoring of these populations, the Explora series of robotics would prove the only effective tool to get the results the operation required.

The mission

Australia is home to over a million species of flora and fauna, many of which are endemic to the country. Mining operators must monitor environmental impact to ensure the sustainability of their operations.

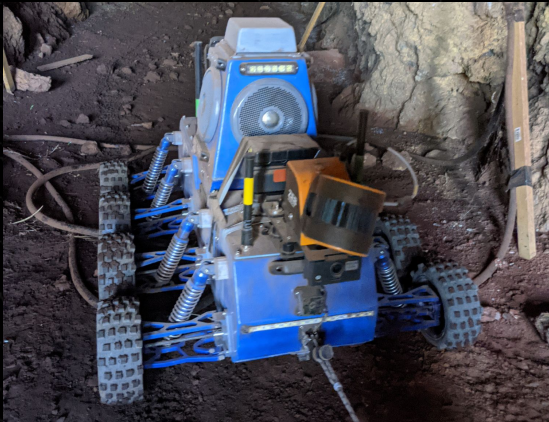
One such unique species that lives in the Pilbara region is the Ghost Bat. These vulnerable populations of bats make their home in caves and old mine workings, which pose severe dangers to humans in the form of potential collapses or hazardous atmospheres.

Sending anyone from the environmental team in was not an option.



Example tunnel inaccessible to humans. Home to native flora and fauna populations. Light in the photo is an Explora traversing the terrain.

The Challenge of Accessing Old Workings and Caves



ADR specializes in providing cutting-edge robotic solutions that address critical customer challenges.

Working with the team to define the best solution, an Explora robotic system was deployed with a battery of sensors and teleoperation equipment, enabling the team to perform all the necessary investigations from a safely separated distance.

Explora's payload capacity, battery life, ease of use and ruggedness meant that not only were the assessments made possible, but were able to be conducted far more efficiently than by human operators.

The Explora system has been operating for over two years without fault, becoming a part of regular operations within the team.

In order to assess the health of the population, a complex suite of data collection was required, including visual, spatial, temperature and humidity data. In addition to this, scat samples would also need to be taken to analyse feeding and breeding habits, as well as providing assistance to the team in a tagging programme to help monitor the bats movements.

All of this would need to be done remotely, as entry to the old workings are often prohibited due to the extreme danger.

Old mine workings are also a treacherous environment for a robotic system, requiring the ability to operate over long distances, rough terrain, and often for hours at a time, carrying a large array of sensors and equipment.

End to End Robotic Solution



The Results

Social licence to operate is critical for mining operations.

Failing to manage environmental risk can cost mining companies millions of dollars. In some cases it can lead to a loss of the company's licence to operate.

This mine company committed to demonstrating their social licence to operate. With the Explora they have achieved the impossible. Environmental monitoring in areas that are too dangerous for humans.

The insights provided by Explora allowed operations to continue, knowing they had the data they needed to manage this environmental risk.

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LIVES LOST

\$∞ Value

**LICENSE TO
OPERATE**

2+

**YEARS OF
ROUTINE USE**

Conclusions

Data capture in hazardous industrial environments is challenging for safe operations. Compromises are often made between team safety and data capture requirements.

The Explora is a robust, field-tested robotic platform designed for these environments. It provides high quality data capture with no compromise to safety.

DISCOVER SOLUTIONS