Introduction

Orion Technology is a leading drone and artificial intelligence (AI) solutions provider for the mining industry. Our advanced drone technology, equipped with LiDAR, magnetometer, and camera sensors, provides mining companies with accurate and detailed data and insights that improve safety, efficiency, and sustainability while reducing costs. Our AI-powered drones can operate autonomously, streamlining complex mining processes and reducing the need for manual piloting. With our advanced capabilities and expertise, we help mining companies stay ahead of the curve, making informed decisions and optimizing their operations while mitigating the environmental impact of their operations.

Problem

Orion Technology solves several challenges related to the use of artificial intelligence (AI) in the mining industry through their drone solutions. Here are some examples:

1. Data Management: The use of drones for data collection generates large amounts of data that need to be managed and analyzed.
2. Object Detection and Recognition: The complex and dynamic nature of mining environments can make it challenging to detect and recognize objects accurately.
3. Autonomy: The ability of drones to operate autonomously is critical to their effectiveness in the mining industry.
4. Integration: The integration of AI technology with existing mining systems and processes can be challenging.

In summary, Orion Technology solves several challenges related to the use of AI in the mining industry, including data management, object detection and recognition, autonomy, and integration, through their drone solutions.

Solution

Orion Technology provides drone and artificial intelligence (AI) solutions to solve various problems in the mining industry, such as improving safety, efficiency, and sustainability, while mitigating the environmental impact of mining operations. Their AI-powered drones can recognize and identify objects in real-time, enabling more efficient and safe operations. Orion Technology's solutions also help improve data management, enable autonomy, and integrate with existing systems, resulting in a more streamlined and efficient workflow that reduces costs and improves operations.
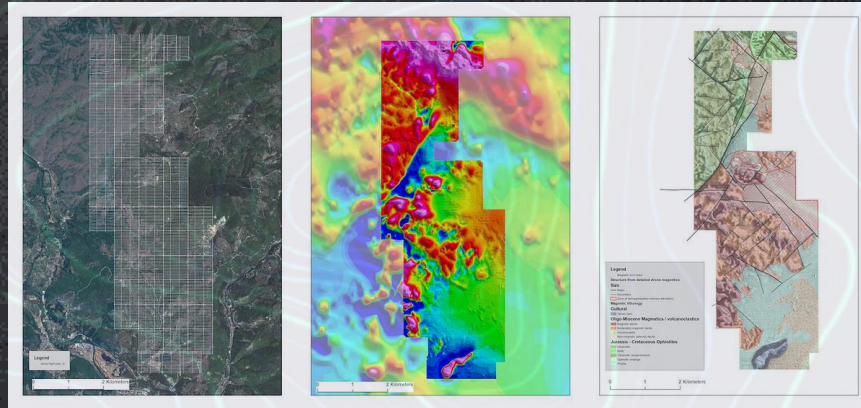
Market

The global market for drones in mining was valued at USD 627.4 million in 2020, and is expected to grow at a compound annual growth rate (CAGR) of 24.7% from 2021 to 2028, reaching USD 3.92 billion by 2028.

Customers in Saudi Arabia

- **True East Mining Company:** a privately-owned mining company focused on exploring and developing gold, copper, and other mineral resources in Saudi Arabia.

- **Alhaytham Mining Company:** a privately-owned mining company focused on exploring and developing gold, copper, and other mineral resources in Saudi Arabia.

- **Argas:** a mining services company providing drilling, blasting, and excavation services to the mining industry in Saudi Arabia.

- **Saudi Geological Survey:** a government agency responsible for conducting geological surveys and mapping mineral resources in Saudi Arabia.

- **AMAK (Al Masane Al Kobra Mining Company):** a publicly-listed mining company with a copper-zinc mine, processing plant, and several exploration projects in Saudi Arabia.

Value Proposition

By using drones equipped with LiDAR, magnetometer, and camera sensors, Orion Technology can provide mining companies with high-resolution data and insights that are more accurate and detailed than traditional methods.

Compared to traditional data acquisition methods, such as ground-based surveys or satellite imaging, Orion Technology's drone solutions can cover larger areas more quickly and provide real-time data and insights. This allows mining companies to make more informed decisions and react to changing conditions more quickly.

LiDAR technology provides highly accurate 3D maps of mining sites, while magnetometer sensors can detect mineral deposits and other geological features that may not be visible to the naked eye.

Revenue Streams

Here are some ways that Orion Technology makes money:

- Subscription-Based Services: Orion Technology offers different service packages to customers on a subscription basis, where customers pay a monthly or annual fee for access to their drone and AI solutions.

- Project-Based Services: Orion Technology also offers their services on a project-by-project basis, where they work with mining companies to provide specific solutions to their unique needs.

- Software Sales: Orion Technology also sells their AI software to mining companies, which allows them to process and analyze data collected by their drones.

- Consulting Services: In addition to their drone and AI solutions, Orion Technology offers consulting services to mining companies, providing expert advice on optimizing mining operations and reducing costs.

Simulation with Gui Interface

The GUI interface will be developed using the Unity game engine to allow the user to control the drone and visualize the 3D topographic map of the area. The GUI will include a text input for natural language commands and a 3D visualization of the area with mineral exploration data overlaid on it. The user can use the GUI to select a target area for the drone to explore, specify the flight parameters, and monitor the exploration progress.

Drone Station

Mission B

Mission A

Manual Control

AUTO

NLP

AUTO

Optimize the route to follow areas with gold…..

The Future

The future of Orion Technology as a drone solution company in the mining industry looks promising, and the use of hydrogen power drones and AI has the potential to revolutionize the industry even further. Hydrogen power is a clean and sustainable energy source that could help reduce the environmental impact of mining operations, making it an attractive option for mining companies.

By using hydrogen power, Orion Technology's drones could have longer flight times and be able to cover larger areas, providing even more detailed data and insights to mining companies. Additionally, the use of AI could help improve mission planning and execution, allowing for more efficient and effective data collection and analysis.

In the future, we can expect Orion Technology to continue to innovate and develop new technologies, including the use of hydrogen power and AI, to meet the evolving needs of the mining industry. These technologies have the potential to provide even more advanced capabilities, helping mining companies to improve safety, efficiency, and sustainability while reducing costs.

Algorithms

Drones equipped with magnetometers for mineral exploration will utilize machine learning algorithms such as SVM, Random Forest, Deep Learning, and CNN to analyze the data collected, identify patterns, correlations, and anomalies, and locate mineral deposits. These algorithms improve the efficiency and accuracy of mineral exploration, reducing costs and improving the success rate of exploration efforts.
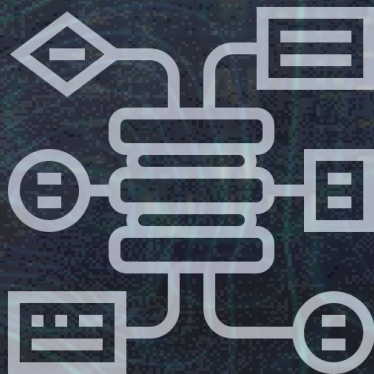
Real-time Topographic View:

The drone system will generate a real-time 3D topographic view of the exploration area, highlighting areas with mineral reserves and their types. This visual representation will provide valuable insights into the mineral potential of the area and help guide future exploration missions.

Partners

Edge Cloud model
for Drones

AI Powered
Hydrogen UAV

Team

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