

USE CASES

Organization's Need

- Inspection of a Coal Mining Vicinity on Weekly and Monthly Intervals.
- Monitoring of Multiple sites in a Coal Mining Vicinity on Daily Basis.
- Customization due to need of Processing the data gathered from LIDAR, RGB, IR and Multi-spectral based sensors.
- Consistent Inspection of the Vehicles used in Coal Mining for Maintenance Purposes.
- Data Processing and Visualization for Analysis.
- Managing large Workforce for performing all the Fleet related tasks.
- To Keep the Fleet operations effective and Optimized.
- To maintain the UAV's health for effective utilization.

Organization's Methodology

- Performing Site Inspection, monitoring of multiple sites, Vehicle Inspection, Data Gathering through different UAVs, which were operated through different software of different capabilities.
- Hiring and assigning large workforce for managing UAV Fleet operations.
- Non-Automated Processing and Analysis of Data.
- Human Derived Evaluation of UAV Fleets.
- Manual Selection of Resources for the given tasks or missions.

Challenges

- Complexity due to different software for different UAVs.
- Bearing high costs due to large workforce assigned for managing UAV Fleets.
- High Rate of Errors and Failures in operations.
- Poor optimization of the given resources.
- Neglected Health Status of UAVs.
- Un-organized and Un-Coordinated Assets.

Note - The Organization needed a holistic Fleet management model which can control multiple UAVs and perform various Operations to accommodate the wide-spread requirements in the Coal-Mining industry.

Resolutions Provided

- Encyclopedic and Autonomous Management of UAV fleets to mitigate the large workforce requirements and Eliminate Human Errors.
- Compatibility with UAVs of various capabilities to manage all fleets from a Centralized unit and provide benefits of coordinated fleet operations as well.
- Optimize Resource Planning for missions with advanced Autonomous system for emergency and risk management to prevent Failures.
- Fulfill the requirements of processing the data gathered from various Sensory units by customizing the platform. Smart Data fusion modules and Creative Visualization of the data gathered for Analysis.
- Automated Data Evaluation and improvised decision making modules for efficient fleets.
- Rigorous maintenance and Tracking of Assets.
- Automated Inspection on decided intervals.

Impact on Results

- Our Autonomous Fleet Management Platform can cater the overall operational requirements in their Coal Mining vicinity.
- The Platform can manage to optimize the resources and finances by handling operations

USE CASE

Organization's Need

- Large scale management of UAV Fleets.
- Automated operations for time-efficient operations.
- Coordinated Fleet operations for runway optimization and upscaling the performance.
- Multi-UAV Compatibility for premium fleet experience.
- Optimization of Resource for better usability of Assets.
- In-flight Communication and Data Visualization Dashboard.
- In-flight incident response and Disaster Control System.
- Timely Maintenance and Sustainment of UAVs.
- Effective Mission Planning and Route selection.
- Automated Return operations and Parking in the UAV Airport.
- Rigorous tracking of UAVs for Inventory Management.
- Systematic Orientation and Tracking of UAVs parked in the UAV Airport.

Challenges

- Complex Operations due to multiple Software for multiple UAVs.
- No Coordination between the Fleets which leads to low performance.
- Imperfect optimization of Given Resources and Assets.
- High rate of Failure in Emergency situation.
- Non-Automated Operations.
- Low Maintenance Rate and Ignored UAVs Health.
- Low-grade Handling of Assets and Un-Oriented Parking.
- Poor Communication and Data Processing and Visualization.

Resolution We Provide

- Large Scale Fleet Management Platform with Multi-UAV compatibility.
- Automated Fleets with AI-Enabled Decision Making System.
- Smart Emergency response and Disaster Control system.
- Efficacious Coordination for Runway optimization and Better Performance.
- Smart Data Fusion & Visualization modules with Real-time Data Communication.
- Automated Mission Planning and Route Selection through AI-backed Techniques.
- Highly Organized UAV Airport with dedicated Tracking while not in function.
- Rigorous Asset Health tracking and notification system for Maintenance Purpose.

Impact

- Ease-of-Operations saves time and extra-efforts.
- A Centralized Platform that eliminates complexity and prevent chaos.
- Mitigated workforce requirements and perform Automated Operations.
- Perfectly Optimize the Resources to restrain wastage.
- Dedicated Positioning system keeps track of operating as well as non-operating UAVs to prevent misplacements and disappearance.
- Eliminates failures and accidents due to Human Errors.
- Prioritize Maintenance of Assets and Evaluate Performance.