Drone Use Cases

Oil and Gas Industry

Currently, O&G companies have tons of inspections that require a lot of manual effort.

1. Manned inspections can take weeks to perform and can cost the company a lot of money since the human resources need to be maintained throughout that entire time. Certain inspections can also present certain risks if inspecting areas that may be difficult to reach (oil pipelines, offshore oil platforms, etc). With a drone, these organizations can be able to save a lot of time since a drone can be able to inspect the area with oil pipelines in less time and is more efficient.

A drone can be used to constantly monitor and take visuals (picture and video) of miles and miles of oil pipeline areas and can send the data back to the cloud to be constantly analyzed during the preprogrammed flight paths. Drones constantly monitoring oil pipelines and oil tanks would allow them to collect data on what the “normal” conditions are (pipelines in good condition) and once a “negative” condition (visuals with possible oil leaks) has been detected, it can automatically create a notification to the right person to address the issue immediately. The analytics would be through IBM’s visual recognition along with other data services for storing the data in the cloud.

Overall, this would mean less time wasted, less cost for labor, high efficiency and higher safety.

1. Drones can also be used for monitoring locations for gas emissions, flare stacks, and areas that may be difficult for workers to be around consistently. These kinds of dangers are not easily detected by workers and can provide certain risks to the team if a possible situation arises. For this case, not only can a drone help with visual recognition capabilities, but a drone can also have sensors attached to it such as gas sensors (hydrocarbon/gas sensors) to detect when dangerous gases such as methane are in the air. With IBM’s analytics portfolio, we can collect and analyze the data in real time to provide sub-second responses and notifications for when a critical situation arises.

Agriculture

1. Currently, workers in agriculture have to constantly scout their acres of crops to search for areas in their fields that may be limiting their yields. These issues can arise due to the crops not receiving enough water or sunlight or from having bad soil in the area. Manually scouting these areas can waste a lot of time and effort. Companies can leverage drones to quickly increase their return on investment.

By leveraging drones, agricultural companies can have the ability to achieve high visibility over their assets. Drones will allow companies to see the true health of their fields by seeing how much sunlight is hitting (or not) each areas of the crops and analyzing this data to detect where the workers need to pay more attention. An aerial view would also provide more efficiency towards inspecting large areas of land and providing alerts and an assessment of the land. This aerial view can come in the form of heat maps of the land, or searching for gaps in the crops due to areas with unhealthy soil. This use case would be done with sending the data of the crops to the cloud and analyzing the images and possible heat maps to determine which areas may need more attention. In doing so, the company would be able to optimize water and fertilizer distribution as well as their overall yield.