UNIVERSITI TEKNOLOGI MARA

Vortex Edge Sdn Bhd

COMPANY ANALYSIS

VORTEX EDGE SDN. BHD.

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Nur Ilyani Binti Mohd Zulkiflee

EXECUTIVE SUMMARY

Vortex Edge (Sdn.) Bhd is the first Malaysian developer of unmanned systems. Vortex Edge serves UAV manufacturers who maintain high standards for both the hardware they integrate into their systems and the software that drives them. For this study case report, a drone produces by Vortex which is Zarai Sense precision agriculture drone been focused to be investigated, identity and analyze to come out with a new product and solution.

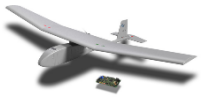
Vortex Edge Sdn. Bhd has been analyzed based on the background of the company, and organization structure. The company product and services have also been described in this report as an introduction to the company analysis. The technology used and their business, marketing, and operational strategy also been analyzed in this report to been included in company information as to their product Zarai Sense drone will be studied and analyzed for this case study report.

During the analysis of the SWOT of the company which is the analysis of strength, weakness, opportunity, and threats, four weaknesses have been come out for the Vortex's drone. The problem is low coverage for one flight, low accuracy in locating a location, not included with the system for tree counting and plant health detection, and lastly less effectiveness in spraying. All the weaknesses have been identified after the process of studying Vortex's drone which the purpose of the drone is for precision agriculture name Zarai Sense Drone. The drone can be described as less in important specks for precision agriculture purposes.

During the finding section, all the weaknesses have been described based on the drone and alternative solutions have been made to replace or amend the weakness. As all the four weakness have been found in the drone, four solutions have been recommended which is for the first problem the solution is by replacing the fixed-wings of the drone with hybrid fixed-wings VTOL, for the second solution of the second problem is by improving GPS system with RTK-refined geo-targeting system. The third solution of the third problem is by planned and logged the drone with AiraMap™ artificial intelligence apps and lastly, the solution of the fourth problem is by providing the drone two-ways mode to spray which is spot mode and blanket mode.

The last of the report will contain the new product that has been proposed for this report named "Hybrid Airamap Zarai Sense Drone". The drone contains the new specks which replace in the drone to increase the usage of the drone for the agriculture purposes. The innovation or new recommendations included in the drone have been fully described in the finding section which is the solution to the problem.

2.3 Products

No.	Type of Products	Classification of Product	Description
1	 Merpati	- Military and Homeland Security Applications	-Merpati Hand Launched Unmanned Aircraft System (UAS) is a lightweight solution designed for rapid deployment and high mobility for both military and Homeland Security Applications, requiring low altitude surveillance and reconnaissance intelligence. -The Merpati can be operated manually or programmed for autonomous operation, utilizing the system's advanced avionics and precise GPS navigation.
2	 Johar 1.0	-Autonomous Flight Control System	-Vortex Johar 1.0 provides a complete avionics system solution including the core autopilot, flight sensors, navigation, wireless communication, and payload interfaces, all in a small and highly integrated package. -It is backed by full hardware in the loop simulation system for modeling, simulation, autopilot tuning for any airframe.
3	 Snooper	-SNOOPER Unmanned Aircraft System (UAS)	-Crafted out of specially designed extra light material , offering a better structural strength and wind loading to carry increased pay load capacity in comparison to any of its counter part in the same class category. -The SNOOPER can be operated manually or programmed for autonomous operation advanced avionics coupled with state of the art anti jamming spread spectrum communication link makes it feasible for use in demanding military applications.
4	 Auto Tracking System	-System that tracks the UAV's location	-Vortex Auto Tracking system is a system that track the UAV's location and use this information to correctly align the antennas and to improve the payload real-time video link communication signal. -This tracking antenna has been specially designed to rugged, portable and to be readily dissembled and