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ENT600

TECHNOLOGY ENTREPRENEURSHIP

DRONE ASSISTED DETECTION SYSTEM (DeADS)

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Figure 3: Block Diagram of U-Farm

1. EXECUTIVE SUMMARY

A search and rescue drone are an unmanned aircraft used by emergency services, such as police officers, firefighters or volunteer rescue teams, ideal for searching over vast areas for missing persons and crime victims in need of rescue and in any environment. Unmanned aerial vehicles (UAVs) can provide real-time visual information and data in the aftermath of an earthquake or hurricane. They can also become an eye in the sky to locate a lost person in the mountain for example. This report is about the system that can help to automatically detect the human body in lying position. The benefit of this project is we can use drone for search and rescue operation (SAR) and disaster victim identification (DVI). This is because this drone can detect human body in lying position exact location in the disaster area so that the rescuer team can easily find and locate the missing victim. Most of the disaster area is very dangerous for human to enter to give the first quick rescue. The search and rescue team also need to prepare on the suitable attire to wear before enter the disaster area. This drone is very helpful because it provides mobility, easy to setup, real-time visual information and location and suitable for any type of disaster.

The existing product in market does not implement artificial intelligence (AI) for the object detection. They just monitor and observe the screen themselves in order to get information about survivor from the disaster. A market survey was conducted and the survey has shown that a majority of the respondent were agree that the existing method for SAR operation consumes a lot of time start from the set-up of the operation until the rescue operation. The survey also collected data of respondent that really hope this system was going to use for the SAR operation. Our target markets are Malaysian Fire Fighter, Malaysian Civil Defense and university researchers. We are now competing with SnakeBot and BEAR (Battlefield Extraction-Assist Robot), as they also provide the services for search and rescue operation. We estimated our profit per month is RM 48,500 and annually is RM 582,000.

However, this system is not fully ready yet to be implemented for the SAR operation. There is still a lot room for improvement needed to be done.

2. PRODUCT AND SERVICE DESCRIPTION

1.1 NEW PRODUCT DEVELOPMENT

1.1.1 DEFINITION

New product development (NPD) is the process of bringing a new product to the marketplace. The business may need to engage in this process due to changes in consumer preferences, increasing competition and advances in technology or to capitalize on a new opportunity. Innovative businesses thrive by understanding what their market wants, making smart product improvements, and developing new products that meet and exceed their customers' expectations.

'New products' can be:

- products that the business has never made or sold before but have been taken to market by others

- product innovations created and brought to the market for the first time. It may be completely original products, or existing products that you have modified and improved.

NPD is not limited to existing businesses. New businesses, sole traders or even freelancers can forge a place in the market by researching, developing and introducing new or even one-off products. Similarly, it does not need to be an inventor to master NPD. The business can also consider purchasing new products through licensing or copyright acquisition.

1.1.2 CLASSIFICATIONS OF NPD

Classification: Additions to existing product lines

The idea of Drone Assisted Detection System (DeADS) is driven from the search and rescue operation problem. While significant progress has been made in the development of ground robots for SAR operations, most of these robots still lack the mobility needed to explore disaster sites autonomously. Usually the SAR operation will consume a lot of time to finish and required a lot of manpower. This will automatically increase the cost for every SAR operation. Hence, we came out with Drone Assisted Detection System to help reducing the problem. This system is improved by adding Artificial Intelligence technology in search human body in lying position detection into the existing drone with camera system. By implementing the AI, the system able to automatically detect lying victims in disaster area. Of course, it would not be able to completely solve the problem, but it can ease the Search and Rescue (SAR) operation.

1.1.3 RESEARCH & DEVELOPMENT

The R&D process done for the ideation stage through is that using final year project. as the product to promote to consumers. In the group there are many ideas thrown out from our final year project. That is theme of the product development choosing from the title of our final year project.

The generation of the idea is that, we have three members in our group and each member are doing final year project. So, each of us explain our final year project to each other to choose which one is suitable for the project development and the business development. The first idea is about research in task scheduling algorithm in multi-processors environment. The second idea we proposed development of on-board computer for nano-satellite. The third idea is about Artificial Intelligence implementation to the drone system. We choose the third idea because the idea is suitable in term of commercialisation.