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Micro Air Vehicle (MAV): Refined/Redefined Idea

Following the idea from assignment 1, I decided to retain the idea and develop additional analysis for the project. Summarizing the initial idea, micro air vehicle (MAV) is basically a small version of Unmanned Aerial Vehicle (UAV) that can be used to reach into inaccessible environment which is very useful especially in medical and military department. I would identify the military as the user, the school as the client, and the students as the designers.

There are a lot of potential requirements from each of these stakeholders. Let us start with the user. The military might want the MAV to be small and light-weight in order for them to carry it easily to their missions' locations. Heavy and large MAV will slow down their operations. Other than that, the military might want the MAV to not be easily destroyed by enemy bullet. This is an important feature that the MAV should have to ensure that the military can operate the MAV in the battlefield without having to worry about enemy's threat to the MAV. The other requirement that the military might need is that the MAV must have a long range flight control. This is crucial if the military want to scout or spot enemy's infantry from afar, making sure their safety is secured. The most important thing for military is that, whether the MAV will improve the current MAV that they had. Of course, there are a lot of other requirements needed by the user but those listed above are the most important requirements.

The client, which is the school, also has its own requirements for this project. One of them is whether or not this project is appropriate for college students to pursue. Other than that, the client might concern about the cost to proceed with this project. Being a project specifically-designed for the military, the cost to build it might be beyond school's budget.

One of the requirements for designers is what use will the military make of the MAV. The main use is of course to scout and spot enemy's infantry and environment. The other possible usage is observing, collecting data, and analyzing data of enemy's environment. The designers might also concern about how much can the MAV cost in order for them to design and build it accordingly. Other than that, it is important for designers to know why the existing MAV are needed improvement and in what area does the MAV need to modify.

Initially, this project idea is not practical in the sense of cost and time because building a MAV will require a very high cost and a very long time to complete. Hence, few adjustments are considered to make the project be appropriate for a two-semester design project. One of them is building a small-scaled MAV with short range flight capabilities. Moreover, the MAV will be made by recycled materials to minimized cost. To complete this project, skills in wireless networking is essential as it is the main aspect of this project. However, my lack in wireless networking skills will slow down the project's progress. However, this can be improved in group forms.

Now, I would like to analyze the strengths, weaknesses, opportunities, and threats for this project. Let me starts with the strengths. I think this idea of MAV project is a great idea and will be successful because equipment like this is very much needed by the military to be prepared and defended in this modern world. In a case of enemy attack, the MAV will be one of the most useful equipment for military in combat to ensure the safety of the citizens. Other than that, the

impact that this project can bring is a much more secured and safe environment. The enemy will think twice before attacking as the military holds high-tech equipment that can be used to counter attack. This will indirectly prevent another world war.

Despite the strengths above, this MAV project also has its own weaknesses. In order to minimize cost and time, the MAV will not be able to be made as strong as expected. This might reduce the military's interest in the project. The user's interest might lowered but not to the point that they are no longer needed the MAV. The other weakness of this project that I think of is that the cost might go up as the time passed. This is because the current world economy is not quite stable.

Having few weaknesses, if I were to slightly modify this project, there is a significant new opportunities. One of them is the market. New users such as environmental researchers might be interested in this project. In environment researches, the MAV does not need to be as strong as needed by the military because no one is going to destroy the MAV. It only needs to be able to withstand any possible threat from the nature in the inaccessible area. This means that the MAV can be used in other applications than military.

The biggest and probably the most risky threats in this project is that the users might not be interested at all in this project. Being a project done and pursued by college students, the user might doubt the experiences and reputation of college students. Other than that, the government might not approve this project to the public because of security reason. This kind of project is usually developed by a specific group of people only. From the possible threats listed above, this project might completely fail in both its execution and value.

References

- “Micro Air Vehicle: Three Gram 'Dragonfly' Takes Flight” [http://www.sciencedaily.com/releases/2008/07/080722085558.htm]
- Wikipedia articles [http://en.wikipedia.org/wiki/Micro_air_vehicle]