Vantek

Progress Report for the Robison Detector

Shayan Ebrahimi, **Chief Executive Officer**
Siavash Seyfollahi, **Chief Operating Officer**
Raj Wardhan, **Chief Financial Officer**
Gurinder Singh, **Chief Technology Officer**
Siheng (Shane) Wu, **Chief Marketing Officer**
Kartick Verma, **Chief Information Officer**

Primary Contact: Shayan Ebrahimi, shayane@sfu.ca
Submitted to: Dr. Andrew Rawicz (ENSC 440)
Steve Whitmore (ENSC 305)
School of Engineering Science
Simon Fraser University
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1. Introduction

A common problem for many drivers is they are unable to hear emergency vehicle sirens on the road. Either their stereo's volume is too loud or they simply missed the siren. At Vantek we have designed a solution to this problem, the Robison Detector. This device will detect the emergency siren and send an alert to the driver. That way, the driver will be able to safely yield to the emergency vehicle. Given the significant progress made in the last month, we at Vantek are confident we can deliver a functional prototype by December 16th, 2014.

2. Schedule

Table 1 - Schedule based on the Proposal's Gantt chart. Green = complete and orange = incomplete.

Tasks	Start Date	Duration (days)	End Date
Research	Sep. 2	28	Sep. 30
Project Proposal	Sep. 2	20	Sep. 22
Hardware Design	Sep. 22	46	Nov. 7
Functional Specification	Sep. 23	21	Oct. 14
Design Specification	Sep. 23	41	Nov. 3
Software Design	Oct. 6	32	Nov. 7
Assembly	Nov. 3	4	Nov. 7
Test/Debug	Nov. 3	28	Dec. 1
Documentation	Sep. 2	90	Dec. 1

As can be seen from Table 1, most of the documents are finished. However the assembly, testing, and the last few documents are tasks that are yet to be completed.

3. Finances

Table 2 - Items purchased so for the project.

Component	Quantity	Cost
Audio Booster Pack	1	$56.34
MSP430 Launch Pad	2	$40.36
EzDsp	1	$122.80
VPS	1	$20.00
Fedex Custom Fee	2	$36.86
		Total Cost: $276.36

Our initial estimate of the project's cost was $684 and so we are well below this value so far. We were granted $450 by the ESSEF and being under budget also allows for future purchases if necessary.

4. Progress

4.1. Planning

Weekly meetings have been held by Vantek to ensure the team is in synchronization with all the work

involved. Documents and coding sessions are planned well in advance to ensure attendance and proper organization for those involved. Much of the planning and communication takes place on a chat group whose members are only the Vantek team.

4.2. Research

Much of the research for the project took place in August and September, before any coding or implementation began. However, there was some research involved with the DSP selection and for coding. This has led to the addition of the IVI system and the correction of numerous bugs with help from online forums and case testing.

4.3. Design & Experimentation

The design process has gone through a few iterations, this includes the first prototype's features and what kind of hardware to use. Further testing was conducted during the siren detection phase of the project, which is now complete. Additional experiments will have to take place to simulate different scenarios for the siren and during the integration phase. Combining the IVI system with the siren detection to lower the stereo's volume (integration phase) will also require extensive testing.

4.4. Parts & Materials Acquisition

Most of the parts for the project were acquired through online sources because of their convenience and competitive prices. However the PandaBoard was lent to us, which has saved us a considerable amount of funds. The old DSP board, which was determined to be inadequate for our needs, is still with us for now. Once the team has more time, returning the part will be looked at. Possible future purchases include a higher quality microphone and an enclosure for the entire device.

4.4. Fabrication

For now fabrication is not needed for the Robison Detector; however it may be an option later on for commercialization purposes.

4.5. Documentation

Vantek has successfully completed all of the required documentation thus far. The remaining documents are being worked on.

5. Conclusion & Summary

The Robison Detector is nearing completion and the first prototype is close to being ready for demonstration. The project is expected to be completed by December 9th, 2014, a week before the presentation which allows for the accommodation of any possible setbacks. The Robison Detector will give a solution for distracted or unaware drivers and will make the roads a safer place for all users. Vantek is confident in its product and its team for delivering the project on time.