iTech- An Interactive Technical Assistant in Automobiles

ABSTRACT

The idea for iTech was adapted from the dissertation of Dr. Dale-Marie Wilson which presented the use of conversational agents as technical assistants on a computer system. Our project aims to utilize this concept within automobiles. With iTech, a driver may be able to pose a question verbally and in a natural way to the vehicle while driving. The driver would then receive a verbal response for the question and the page number where it can be found in the manual.

MOTIVATION

Automobiles today are becoming more and more complex, and so are the accompanying manuals. Many vehicle owners only realize the need of acquiring information about their vehicle while they are driving. This poses a huge inconvenience to drivers since attaining this information would require them to pull over and either consult the printed manual if it is accessible or consult an electronic manual. This results in the underutilization of many features of the vehicle and user dissatisfaction. iTech promises to solve all these problems by making the manuals for vehicles easily accessible to the owners.





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HOW IT WORKS

iTech uses Answers First (A1) methodology (also coined by Dr. Wilson) which indexes a database by anticipated questions. Unlike traditional database which are indexed by keywords, the A1 methodology allows users to communicate to the system by speaking in a natural way.



While operating the vehicle, the driver presses a button then poses a question to iTech. The system then breaks this question into a series of bigrams and matches these bigrams with questions stored in the database. The answer to the question with the most hits is then returned to the driver. Past research has shown that A1 out performs traditional databases.

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Distracted drivers have been the cause of many accidents in the past and are becoming more prevalent as the use of wireless communication devices increases. Our studies will evaluate the level of distraction to drivers as they use iTech. Study participants will be asked to operate a car simulator and will have to manoeuvre through curvy terrains while using iTech. We will measure distraction by recording metrics such as lane keeping, speed variability and by implementing eye-trackers to determine how often the participants' eyes shift from the road.

We hypothesize that information retrieval with iTech will be significantly faster compared to physically searching through a manual. Also, iTech will cause little distraction to drivers since communication with the system is strictly verbal and because with A1 the driver will be able to speak with the system in a natural way.

Wilson, Dale-Marie. *ITech: An Interactive Technical* Assistant. PhD Dissertation, Auburn University, Auburn, Alabama: 2006.

FUTURE WORKS

REFERENCES

