Video Visual Scene Display Mobile Application

Alyssa Leonard | Joey Miscioscia | Kevin Higgins
Malvin Wijaya| Steven Godshall | Vivi Vo

PennState College of Engineering

PROBLEM STATEMENT

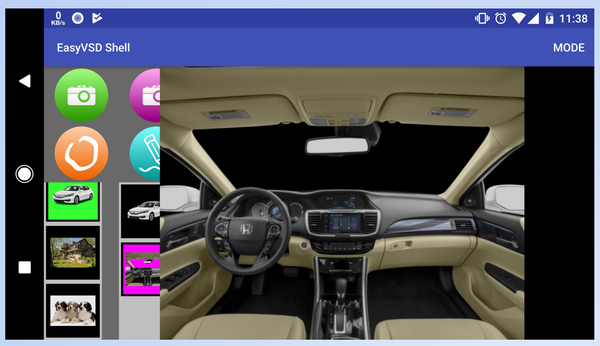
A person with severe disabilities may have trouble learning important everyday tasks, and have trouble communicating. Augmentative and alternative communication (AAC) technologies support communication and participation for persons with disabilities. Easy VSD is an AAC app that supports Videos with Visual Scene Displays (VSDs)[1] . It can be used to provide an interactive way to learn a task or capture an personal event, and also support communication through the use of programmed “hotspots”.

GOAL

The current Easy VSD application only works on 10-inch tablets. It supports the capture of videos, and the programming of “hotspots” to support communication and participation. To best enable the use of the app in a wide variety of situations, the Easy VSD app needs to transfer to smaller tablets and smartphones, and still be fully functional and easy to use.

SOLUTION

We first brainstormed ways we could manipulate the UI to be on a smaller device. After coming up with multiple solutions, we decided that implementing a sliding bar function to the app would be best. It allows for all functions to be used on one interface, while keeping their accessibility feasible for all users.



The photo on the left is what the original app looked like on a smaller screen. You can see that the controls are being covered up, and the number of image options is limited. Also, the main image is not fully displayed.

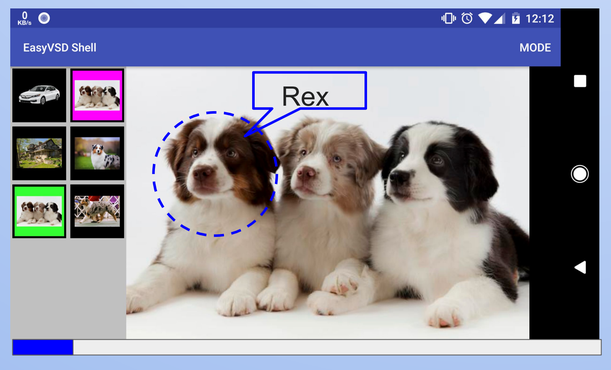
Beginning

Development

Result

To make our changes, we used Android Studio as our development environment.

Android Studio



CONCLUSION

Our project provides a mobile version of the Easy VSD app that works on a Google Pixel phone with screen size of 5.5” .

We hope this app will reduce communication barriers and enable people who require AAC to more fully participate and communicate in life. The next step in the project is to test the app with different smartphone and tablet devices to make sure it works well on a full range of devices.

ACKNOWLEDGEMENTS

This project would not have been possible without the support and guidance we received from our Professor, Sponsor, and Industry Partners. We would like to thank our Professor Al Verbanic for his part in helping us reach our end goals. We also wish to thank our sponsors, The Hintz Endowment for Communicative Competence at Penn State University, and the Rehabilitation Engineering Research Center on Augmentative and Alternative Communication (RERC on AAC). The RERC on AAC is funded under a grant from the National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR grant #90RE5017). NIDILRR is a Center within the Administration for Community Living (ACL), Department of Health and Human Services (HHS). The contents of this poster do not necessarily represent the policy of NIDILRR, ACL, HHS, and you should not assume endorsement by the Federal Government. We also wish to acknowledge the support provided by Erik and Tom Jakobs (InvoTek), and Dr David McNaughton (Special Education program, Penn State University).

1) Light, J., McNaughton, D., & Jakobs, T. (2014). Developing AAC technology to support interactive video visual scene displays. RERC on AAC: Rehabilitation Engineering Research Center on Augmentative and Alternative Communication. Retrieved from https://rerc-aac.psu.edu/development/d2-developing-aac-technology-to-support-interactive-video-visual-scene-displays/