Iowa State University
Department of Electrical and Computer Engineering

Interactive TV Dashboard
Team - DEC1716

Motivation

There are currently plenty of products that present this information to a user, none of which target a television as the primary interface.

Need - 64% of U.S. households contain a television set in the main bedroom of the home.

Project Scope - To create an Android driven television dashboard to present an end user with useful information about their day.

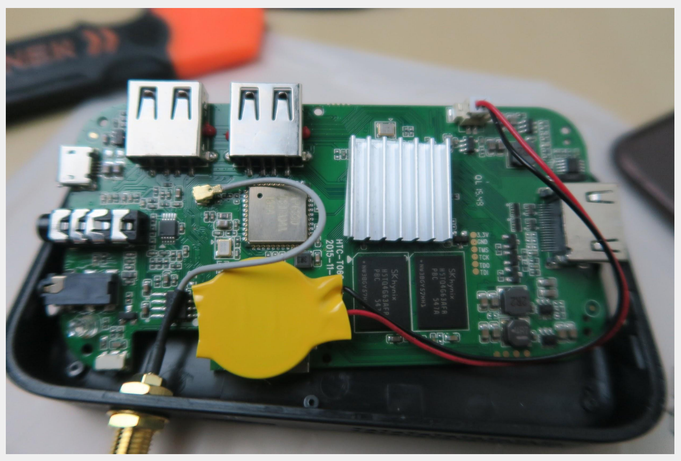
Intended Use - Utilize our application and a television to provide a user with easy to access information about their everyday life.

Requirements

Functional -
- Integrate multiple API components into single application.
- Implement 3rd party APIs to deliver key information to the user.
- Integrate voice commands to request information from the dashboard interface.

Non-Functional -
- Clean and simple dashboard user interface.
- Secure application.
- Applications scales multiple types of Android devices and screen sizes.
- Create an easy to use application.

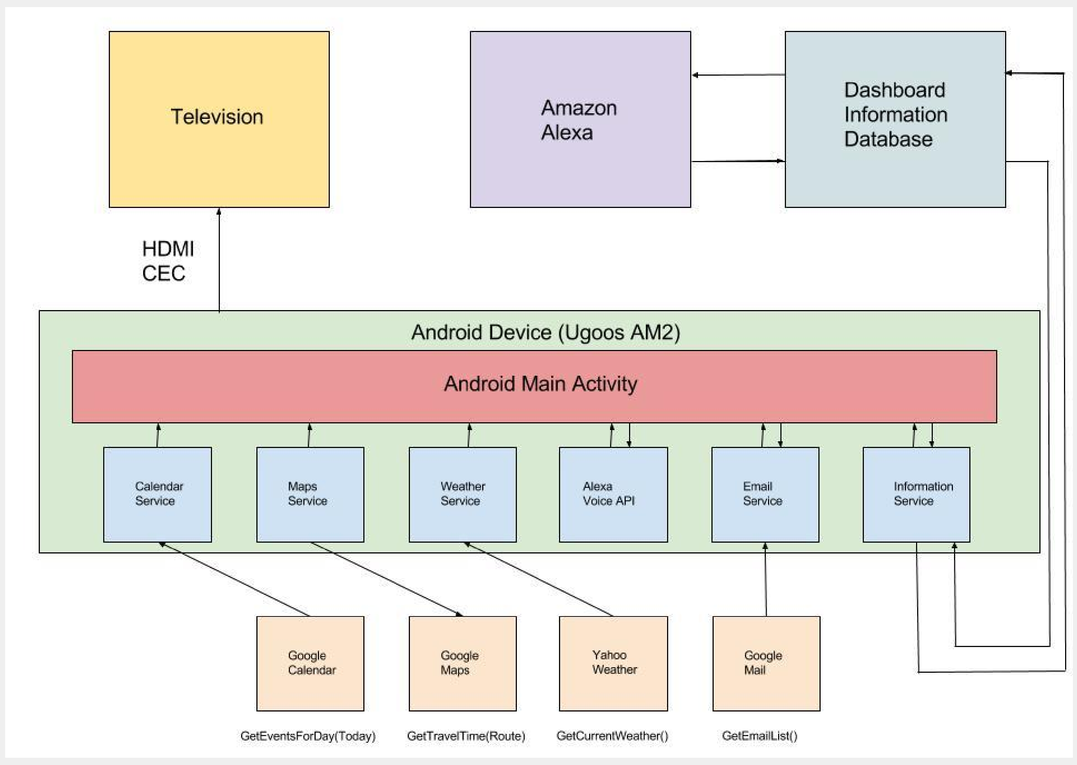
Operating Environment



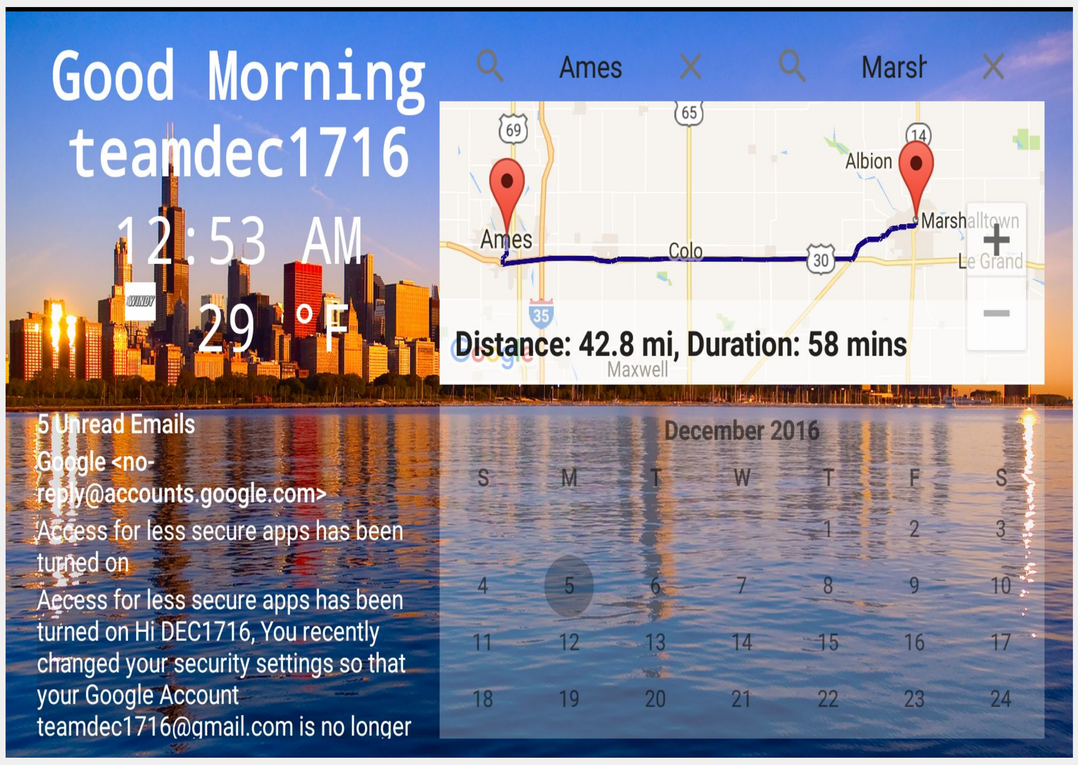
Ugoos Am2

- HDMI-CEC Support
- GPU supported by OpenCV
- Device targets TV and other large screen devices
- On board Wi-Fi
- Silent Operation
- Low power consumption

System Diagram



User Interface



System Module Details

Android Main Activity:
- Where all information from the various major services come together.
- Handles all the elements of the UI.

Major Information Services:
- Calendar
- Weather
- Maps
- Email.
- Responsible for fetching the data from our various implemented APIs.

Amazon Alexa:
- Allows for the voice enabled data responses from our system.

Technical Details

Programming Languages Used: Android Java and Node.js

Targeted Android Version: 5.1.1 Lollipop

Development Environments: Android Studio and Visual Studio

Libraries and APIs Used: Google Mail, Google Calendar, Google Maps, Yahoo Weather, and Amazon Alexa API.

Additional Devices: Amazon Alexa Dot

- This device communicates with our application and enables the voice interaction functionalities.

Design Analysis/Testing

User Friendliness:
- Designed with user friendliness as a major priority.
- Simple interactions with the system enable easy to access data.

Useful Information:
- Presents a user with the key information about their life.
- Kept the information relevant and concise to stay within the scope of a “dashboard” type application.

Maintainability:
- Thorough documentation

Testing Methods:
- Android Studio Testing
- Data Comparison Testing

Team Members
Marco Restaino, William Tangney, Jackie Larin

Client
UAVX LLC

Advisor
Swamy Ponpandi