For the development of this project, we will be implementing a smart TV application. As of right now, it is suggested that we develop an android application. This document serves as an analysis of the pros and cons of the devices and technologies that could potentially used to develop a smart TV application

Android TV OS [CURRENT RECOMMENDATION]

**Pros**

* Familiar UI
* Has three TV brands that integrate Android TV OS technology
  + Sony
  + Sharp
  + Philips
* Officially supported by Google
* Can also be used with NVIDIA Shield to turn any TV into an Android Smart TV
* Can use Java, a language the team has experience with
* Java also has an aws library that can be utilized

**Cons**

* Android look and feel could possibly alienate iPhone users
* Proper android development is a learning curve for the team

Tizen OS

**Pros**

* Officially supported by Samsung
* Has built in IoT integrations in the API
* API is in HTML/CSS/JS which the team has experience with

**Cons**

* Limited to Samsung TVs
* Performance issues (subject to javascript performance bottlenecks)

WebOS

**Pros**

* Uses HTML/CSS/JS for development so that reduces the learning curve for the team
* Known for its multitasking capability (may not be useful for our application)

**Cons**

* Not many hardware features
* Only supported by LG so can only purchase LG TVs
* Past versions known to have performance issues

tvOS

**Pros**

* Familiar UI
* Officially supported by Apple
* Can use Swift or Objective-C to develop apps which are both supported by apple
  + Can tap into the community of developers
* Apple TV is popular and in its 5th generation so it seems like it’ll exist for a while longer
* Apple TV can turn almost any TV into a smart device

**Cons**

* No one on the team has experience with either language so there would be a steep learning curve
* Has to be used with an Apple TV (additional cost). Currently the OS is not integrated into any device.

FireTV OS

**Pros**

* Can develop either an android app or a web app [or other options](https://developer.amazon.com/docs/fire-tv/getting-started-developing-apps-and-games.html)
* Built on Android
* Can use aws sdk for javascript or java

**Cons**

* Have to buy a fire stick
* Conditional learning curve for team depending on the method of development

Roku

**Pros**

* Familiar UI
  + Most used TV device in the US
* Roku can turn almost any TV into a smart device

**Cons**

* BrightScript SDK
  + Learning curve for the team
* Have to buy a Roku along with the TV

Cross platform - React Native

**Pros**

* Can develop for multiple platforms (tvOS and Android TV OS) using much less source code
* Less code, less bugs principle
* Also, all bugs are in the same language when facing bugs on different platforms
* Can use a language that everyone on the team is familiar with to reduce the learning curve (e.g Javascript)

**Cons**

* Cannot access native functionality of each OS
* Performance drawbacks with compiling and rendering HTML/CSS/JS that might affect the user experience