Parental control app that ensures safer internet experience for children

Client is one of the pioneers in the field of parental control systems for smartphone and tablet users. This European giant is focused on providing parents with safer and secure internet surfing experience on mobile and tablets for their children. They provide solutions for iPhone, iPad and Android users.

Situation analysis

The client's application provides the parents the ability to control their child's access and activities on the internet through an app that can be used on both web and mobile. By using the app, the parent can block and filter all unsuitable websites by time restriction and web monitoring based on their child's internet usage.

The existing application though used by thousands of users had some issues and roadblocks that hindered the performance of the app. After receiving feedback from many customers regarding the loopholes of the existing app, the client changed the existing vendor and partnered with e-Zest to fix the loopholes and enhance the app security.

Client Requirement

Client required our support in the below areas and following were the requirements briefed by the client:

- Support in synchronizing web interface with mobile app smoothly and vice versa which was not present in the earlier version
- Enhance and tighten the security of the app
- Offline support for mobile app and make app blocking feature work in offline mode
- Generate daily and weekly email reports on usage of the app and history of the mobile device
- Auto update of blacklisted sites that are not authorized sites for children

Roadblock

The existing version 1.0 for iOS and Android users developed by other vendor had the following issues and loopholes

- Synchronization: settings made by parents in web interface did not reflect in mobile app and vice versa

- Security: weak security allowed many changes in the app setting that made app uninstall very easy
- Unsafe settings: child could easily uninstall and remove the app from the browser by changing the setting very easily
- Offline mode: uninstalling app in offline mode was not possible

Our Solution

As per the client's requirement, e-Zest carried out development of iOS and Android apps in native platform and development of web panel as admin/parental panel. For offline support, we used local database i.e. cold data.

Security

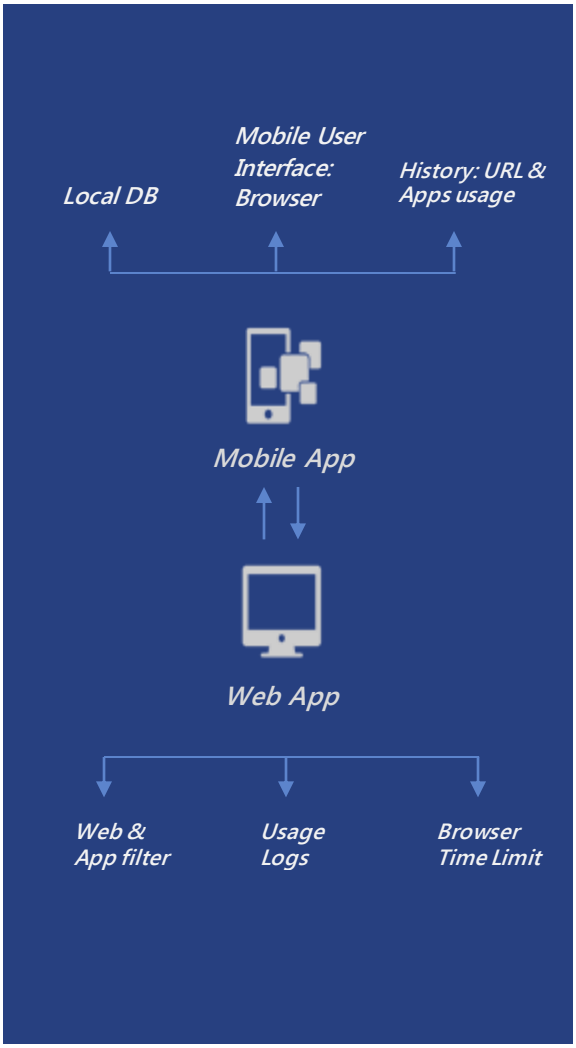
Security for the app was provided by activating device administrator functionality for Android that made user to login with username and password for uninstalling the app. Any user without logins cannot uninstall the app from the device which ensured the app security.

Safe mode

While testing we came across an issue, by changing the time and date the entire setting made for other days gets erased. To fix this issue we activated safe mode that blocks all kinds of device settings by any user without entering logins. Blocking of device setting ensured user login before they change the settings.

Introducing safe mode also ensured the safety of the app as children could not uninstall the app from the safe mode. Also through this feature, children could access only the OEM apps made available by the manufacturer.

Solution Architecture



Syncing

Push notification

Different policies that are set up across the apps, URLs and browsers from the web panel are sent through push notification to sync web to mobile. This is fast and is easily communicated to mobile devices.

To sync all data, URLs, history and usage of the app from mobile to web which users come across in devices is sent to the web version in regular interval of 15 minutes.

Through this synchronization, any app, activity or interactions seen in the mobile is seen in web application. We are handling and controlling the app behavior via the package name by getting the alerts on all interactions. We then sync up this data to web panel in regular intervals.

All apps are synced up to the web bank. Uninstalled app history, download history and policies are maintained for 7 days. When user reinstalls these apps, the older settings are installed.

We integrated Android SDK API services to run background services smoothly. The API provides the list of apps for parents to know and view the apps available in android device on to the web version.

Once the user has done setting and configuration for one device, the same settings can be selected for the second device from the web panel and the same settings can be saved for multiple devices.

Technology Stack

iOS Platform

- Application compatible for iOS 6.0 and above
- XCode IDE
- Objective C Language
- Core Data : SQLite Database

Android Platform

- Eclipse and Android SDK Framework
- Java Language
- SQLite Database

Web Platform

- IIS Web Server
- JQuery, CSS3, HTML, AJAX
- ASP. Net MVC Framework
- LINQ , Entity Framework
- SQL Server Database
- OS Windows (For deployment)
- Push Notifications : Push Sharp

Challenges

- For ensuring high Security, team had to quickly integrate task manager within the safe mode to remove the major security loopholes which was a challenge.
- Handling multiple requests from mobile devices at a time and syncing the same to the web within a specific timeline was a huge challenge.
- Integrating Android SDK API services for Android 5.0 OS and other API level changes.
- Synchronizing web interface with mobile version within a specific time was a challenge.
- For SQL performance optimization, we had to create SQL Jobs instead of Triggers which was a challenge.

Business Value

- After the implementation, the success of the application enabled client to target new potential customers & capture new market.
- Existing customers were very delighted by the app performance after fixing all the loopholes resulting in increase in number of new customers through word of mouth.
- The client targeted Windows OS mobile devices as well expanding the customer base.
- The revenue generated through the success of the app has empowered client to expand the business to potential market targets in US and India.

Conclusion

Client is happy with the application delivered by e-Zest and the design approach by UX team. e-Zest followed intuitive approach to design for both mobile and web application version 2.0 by removing roadblocks and enhance the application and getting rid of the issues. Currently the app has 1000+ customers for Android and 500+ customers for iOS. Client is delighted with e-Zest engagement model has partnered for a long term engagement to work towards future scope to integrate many new features within the app.