

Active Kid

The solution to get kids moving and developing healthy habits in the time of digitalization

Client

Startup

Industry

Education

Location

USA

GOAL OF THE PROJECT

Our client's idea was to create a product which helps children under ten years old to be physically active in today's world when the use of mobile devices is becoming more extensive and screen time is increasing from year to year making children's behavior more sedentary.

Playing games and watching videos on the tablet is addictive and seems more appealing for a child rather than doing some exercises. Although in a long-term perspective the lack of physical activities might lead to different diseases, poor academic performance and well-being in general.

The objective was to turn time with mobile devices into active time, replace sedentary video and game consumption with movement.

CORE TECHNOLOGIES

TensorFlow, PoseNet, Xamarin.iOS, Xamarin.Android, ASP.NET Core Web API, Azure Cosmos DB, Mongo DB API, Microsoft Azure, Azure Mobile App, Visual Studio App Center

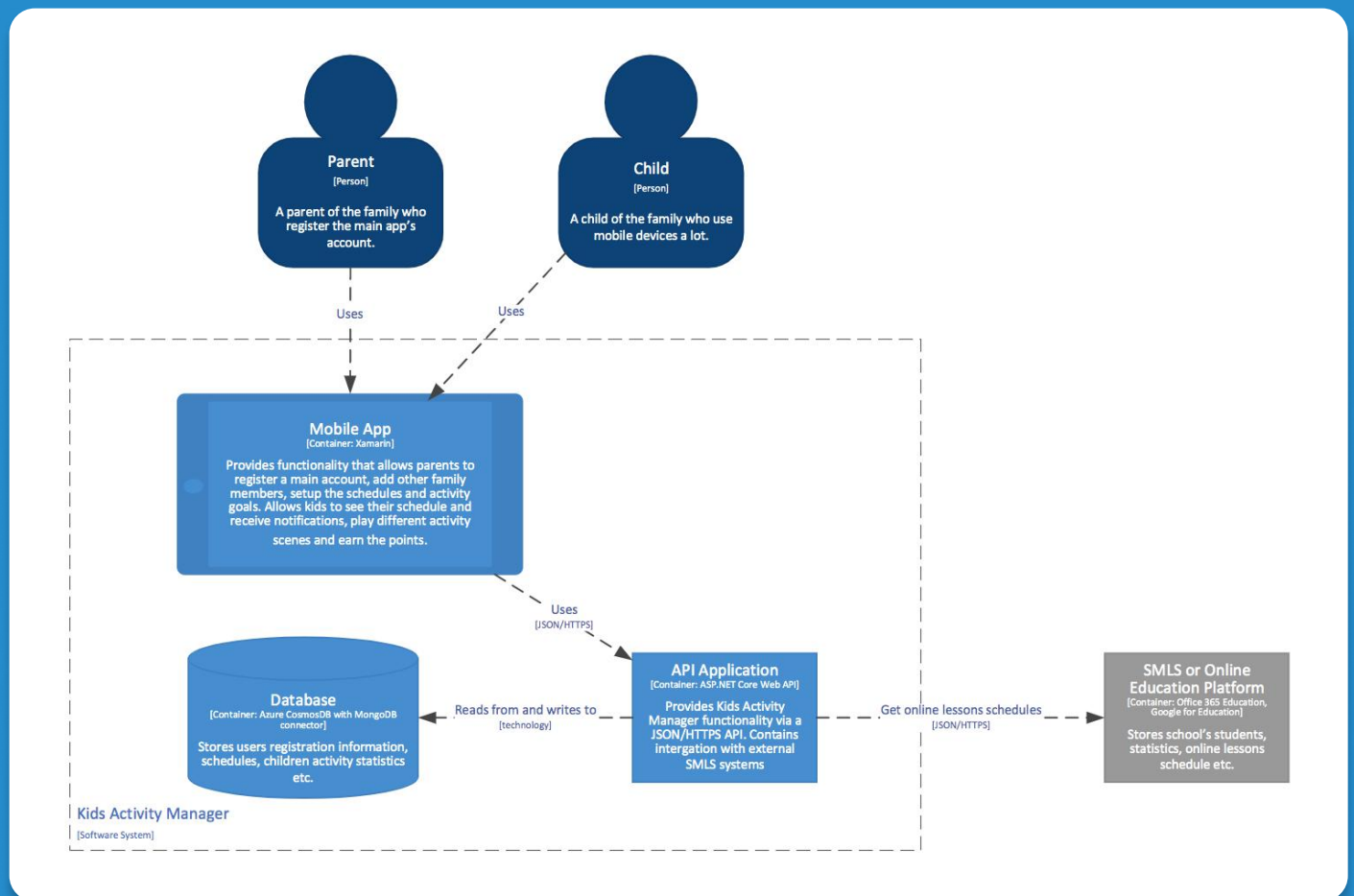


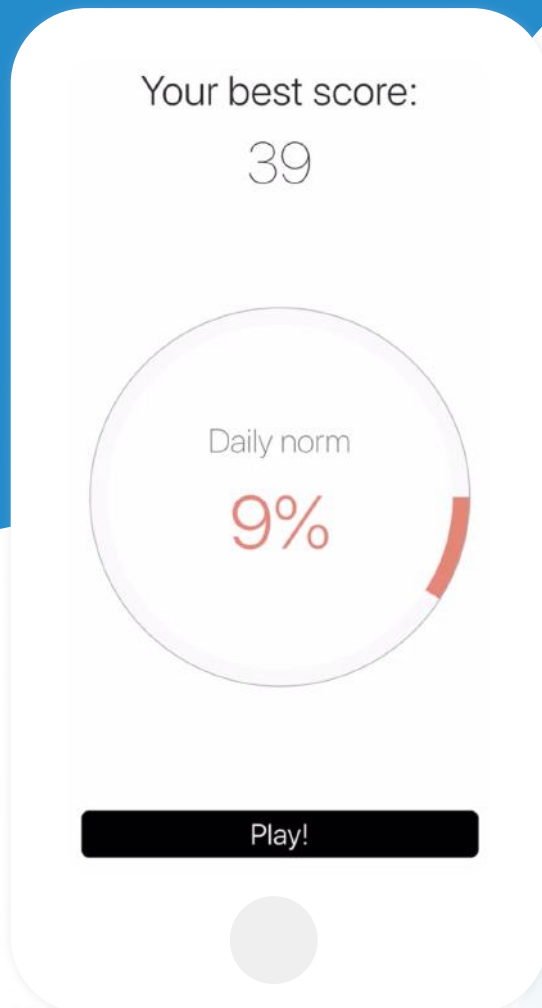
SOLUTION

Our customer's suggested solution was a mobile application which would help a child develop healthy habits including active play. Plenty of interactive content would be available for a child with motion tracking in real-time with the help of device camera. Smart recommendations based on a child daily schedule would help one keep organized, follow daily routines and encourage physical activities in a child friendly way.

We've done some research and proposed our vision in terms of solution architecture and technology stack. Since we needed to support different mobile devices and have centralized storage, typical Client-Server Architecture was chosen for our solution.

Mobile application would be based on Xamarin.Native which allows to have native UI, high performance and access to built-in device features. The server side would be based on ASP.NET Core WebAPI – a cross-platform, an open-source framework for the development of internet-connected, cloud-based web applications.





Video analysis and image recognition are at the core of the solution therefore we analyzed available technologies. Having been acknowledged with Microsoft stack we started investigation of existing Azure Cognitive Services, and also TensorFlow models.

The main purpose was to find a suitable technology that will be used to analyze video stream from mobile device's camera and recognize activities and kid gestures during an activity session.

Finally, we have found TensorFlow based model PoseNet which looked exactly what was needed in context of product MVP. It is a vision model that makes it feasible to estimate the pose of a person in an image or video by checking where key body joints are.

Since we were to build a Software as a Service solution (SaaS) highly scalable and reliable data storage that supports the large datasets was required. We have selected Azure Cosmos DB – globally distributed, multi-model database service. CosmosDB makes it possible to build highly available and responsive applications around the globe as it replicates the data wherever users are.

Security is one of the biggest concerns when talking about children, especially with the use of camera and video tracking. In this regard CosmosDB adheres to strict security standards, having wide array of compliance standards. In addition, all data is encrypted at rest and in motion.

The server-side solution would be completely deployed to Microsoft Azure environment. Mentioned CosmosDB with MongoDB API would be used as the main application database. Azure Mobile App which is an extension to ASP.NET Core Web API, provides such functionality as push notifications, offline mode, social integrations with Facebook, Twitter, Google.

RESULTS:

As a result of the project, we've developed an MVP version of the product with the core features. With it, our customer is now able to launch application on the market and start testing it with the real users. MVP also provides an opportunity to find initial investment.