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Lexus iPad App

a case study



Overview:

We built an interactive iPad app that creates a seamless 3D virtual experience of the newest 2014 Lexus IS. Hotspots within the 360° showroom interior and exterior views highlight key features through rich animations and videos, a unique compare function enables you to see how the competition measures up.

On top of that we built an HTML5 app featuring most of the contents from the iPad app, so that it could be accessed on a variety of devices, including mobile phones, tablets (other than iPad) and desktop computers, including corporate environments limited only to obsolete versions of Internet Explorer.

Challenge:

To provide a seamless, high-definition experience, leveraging the key native features of the iPad: accelerometer, gyroscope and dual-core processor. App needed to be as smooth as the car it presents.

Solution:

The main goal was to provide a potential Lexus customer with a truly seamless experience. To do this, high quality zoom was mandatory. The ability to deeply zoom into key features of the interior of the car while maintaining a “real life” feel was paramount. This was where a vast understanding of low level programming was really important. We decided to build a cube based panorama, stitching together 6 high-resolution, Retina-ready photos. The problem was that the iPad limited memory wasn’t able to keep even 20% of the pictures (not to mention multiple levels of detail) at once and sophisticated solution was developed to make sure that only photos currently visible on the screen and in currently required quality are kept in the memory. Our solutions, like progressive zoom-dependable level of detail enhancement, are similar to techniques used in modern, top-tier 3D game engines.

We leveraged iPad’s gyroscope and accelerometer and used it as a real-feel inducing way of interacting with the panorama instead of swiping on the screen. The user can actually

look around the car while holding the iPad in front of his eyes – iPad being the window to the new world. This creates the unbeaten experience of being inside the car.

For the exterior perspective, quickly displaying high-quality images (what includes reading them from disk, decompressing and rendering) was the biggest technical challenge. We managed to build a solution that included leveraging iPad dual-core processor, dispatch queues and most advanced image decompression methods. The end result is a truly immersive and interactive exterior view and experience of the car. that works smoothly like 3D rendering, but still looks and feels photo-realistic.

Additionally we have created an enhanced multimedia Model Year Perspective brochure inspired by the famous 2013 IKEA catalogue. In IKEA’s tablet integration, featured videos and photo galleries can be accessed via an app by scanning the brochure’s pages. This cutting edge Augmented Reality technology adds one more layer of immersive 2014 Lexus IS experience.

Obstacles overcome:

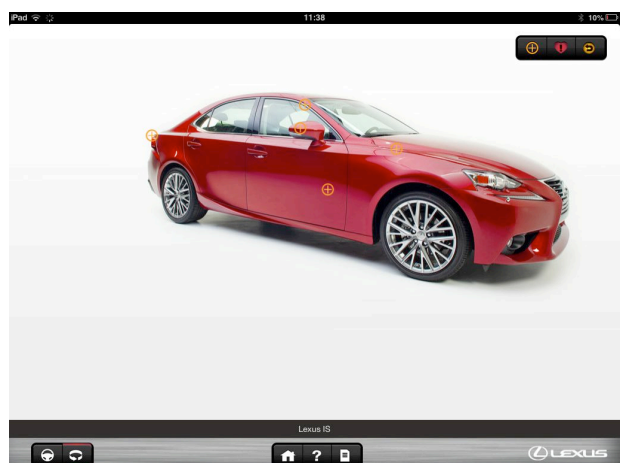
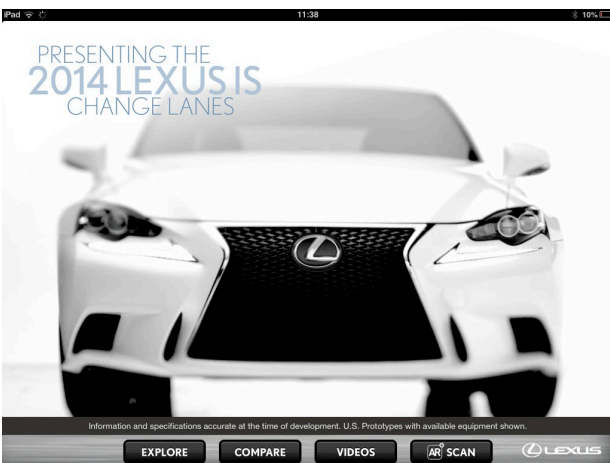
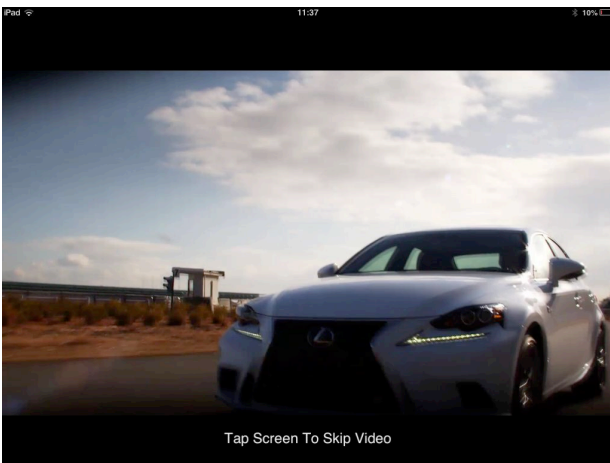
Time was the major factor here. A project of this size would take minimum 10 month with a 2-3 man team. We had 60 days to finish it. Given that communication is the ultimate failure point we assigned two project managers (one client side, one development team side) constantly interacting and redundantly checking all work to make sure the build went as seamlessly as possible. Also, this allowed our developers to truly innovate and build scripts to automate a lot of the work. End result was an application that was delivered under impossible time pressure, but more beautiful and functional than the client ever imagined.

Further reference:

[Download the App from App Store \(US only\)](#)



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Pad 11:38 10%

DESIGN DRIVING POSITION

Model (-3°)
Current Model
2014 Model (-20mm)

SPORTY (YET UNCOMPROMISED) DRIVING POSITION

Seeking to find a driving position that "aims to make the driver and vehicle as one," Chief Engineer Junichi Furuyama adopted a sportier driving position achieved by lowering the driver's hip point by 20mm lower along with lowering the steering wheel angle by 3 degrees as compared to the previous generation LS.

In combination, these ergonomic refinements help realize a driving position resembling the cockpit of a sports car, with drivers' hips sinking comfortably into the seat, hands naturally gripping the wheel while reaching forward. The result: A position that helps to reduce driver fatigue while more clearly communicating vehicle dynamics.

Sporty (Yet Uncompromised) Driving Position

LEXUS