Success Story

Bruner Consulting Case Study | RAD Studio

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>
> – Martin Bruner, Engineering Lead

Bruner Consulting Associates Inc.

RAD Studio

ORGANIZATION

Bruner Consulting Associates

APPLICATIONS

Hardware and Software developer of Class II medical devices (wearables)

TOOLS USED

Rad Studio,
Kinvey Bass (Backend as a Service)

CHALLENGES

Hardware limitations for iOS support

Resource allocation for for conversion tasks

FDA constraints for programming language upgrades

RESULTS

Faster time to market for new product development

Ability to expand to enterprise apps

Can support iOS, Android, and Windows

Introduction

Longmont, Colorado-based Bruner Consulting Associates has been successfully developing wrist units and host apps for the Class II medical devices market for 25 years. Its latest wrist-worn technologies are used in a variety of research applications relating to sleep, circadian rhythm, drug studies, ADHD, and restless leg syndrome. Bruner's customers include healthcare providers, research institutions and the military. The company has introduced five software-oriented products in partnership with AMI (Ambulatory Monitoring Inc.), including its flagship products ActME and WatchWare. It is currently developing a new ZZZ-Logger version for the Japanese market.

Challenge

A die-hard C++ programmer, Martin Bruner, the company's Engineering Lead, has worked with C++Builder for more than a decade. "I've actually been a user of Borland/Embarcadero products since Turbo Pascal for TI Professional Computer, which was the preferred development platform at the OSU EE [Ohio State University Electrical Engineering] program in 1986."

While things have gone relatively smoothly in terms of product development over the years, the time had come to develop new desktop and mobile apps for its current and new lines of products. To

that end Bruner's team recently developed an Android app to support its current wrist monitor technology. However, he soon found his options were limited for other platforms. "I was limited to Android because the adapter AMI was using only supports Bluetooth Classic, which is not supported by iOS," he explains.

Porting code presented additional challenges when it came to iOS. "I was easily able to port the C++ code to Java last year to support Android," says Bruner. "But having to port the Java code to Objective-C/Swift [the programming language for iOS and OS X] proved to be too much work. We didn't have a huge development team. Just one person working on adapters, another on software, and another on hardware. Because of that, we had to allocate resources carefully to get the biggest bang for our buck."

The Solution

Bruner decided to use Embarcadero® RAD Studio to help him rewrite the app to support Android, iOS and the desktop, as well as to take advantage of support for Bluetooth LE. RAD Studio is a software development solution for rapidly building native applications for Windows, OS X, iOS and Android from a single codebase.

The company also opted to leverage Backend as a Service (BaaS) from Kinvey, an Embarcadero partner and cloud solution provider. Kinvey is currently being used for data conversion and

token storage, but the plan is to also store sleep data and push notifications out to devices.

As RAD Studio is a complete software development solution to build connected apps for Windows, Android, iOS, OS X, gadgets, and wearables, Bruner was able to convert his existing codebase to the Embarcadero C++ Toolchain. He is also working on a new wrist device that is based on the Nordic BLE SoC semiconductor. "Currently I'm using the nRF51_DK as my development platform. We also plan to port a version of our wrist firmware to Android wearables, which means all of our next products will exclusively use Bluetooth LE."

With the increased interest in its hardware and software technologies, Bruner says there has been a push from international markets to develop cheaper versions with options to add high-end capabilities for a fee. "This has the potential for us to get into a subscription-based model."

Everything the company is working on today is being written in RAD Studio, he adds. "It has a nice drag and drop component and backend connectivity that makes it very easy to use. What I truly love about RAD Studio is that all the components are there and easy to see and cross-reference. You just click where you want things to go. Navigation is so much easier."

Now that their development work encompasses five languages, Bruner says he especially likes the language feature with RAD Studio. "It's all pretty straightforward, which is great since there is only two of us doing programming. I have the enterprise version to expand to enterprise apps."

Benefits

Bruner is pleased to report that the company now has an iOS and desktop version for its current product line. "At the same time we're developing a new smart watch product that works with Bluetooth LE. With RAD Studio,

we're more productive because it's easier to get things done."

The best part for Bruner is that he can continue to work with C++. "I cut my teeth on C++ so I am used to the way things work with it. I still think it's the best language there is, especially in the embedded world. I enjoy the C++ syntax but I realize I've had to go through some big jumps over time. Right now it's all a learning curve."

With RAD Studio that learning curve is reduced, he says. "It's making it really nice for business."

Bruner Consulting Associates' business is delivering cutting-edge healthcare and military applications across the globe. It's something they have been doing for over 25 years, and they do it using RAD Studio from Embarcadero Technologies.