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Dr. Tsantalís

December 15, 2015  
SOEN 390 Winter 2016  
Software Engineering Team Design Project  
Bidding Document

## **INTRODUCTION**

The goal of our software application Exposeum is to enhance the experience of visitors of the Musée des Ondes Emile Berliner by offering interactive visits to patrons through a mobile app. Exposeum will modernize the traditional museum visit.

Visitors, both young and old, will have a tailored virtual tour guide allowing them to experience a more enriched tour, as well as to facilitate finding their way throughout the building. Visitors will also be able to freely explore the museum's exhibits, all in in french or english.

### **First Choice Platform: Xamarin**

Having thoroughly researched the Xamarin suite of software development tools, we are convinced that the capabilities of this technology combined with our previous experience and existing hardware lead to Xamarin being an ideal fit for us. To substantiate this claim, our team has starting working right out of the gate. The day the project was announced, we searched online and procured 3 Estimote iBeacons to start testing with.

Furthermore, we have created a demo application using Xamarin which connects to our iBeacons using the Estimote Android SDK [including unit testing]. Finally, we have located various resources online including full documentation, tutorials, and code samples.

### **Second Choice Platform: Android (Native)**

In the event that we are not awarded Xamarin we are prepared to work with the Android Studio platform. Our team possesses the required skills and experience to develop the solution under android. Everyone in the team possesses strong knowledge of Java and we have all have some degree of experience with the Android SDK. As part of a previous class project we successfully refactored two Android apps and used Android testing frameworks to write unit tests using Robolectric, Mockito, and JUnit.

# SINISTER SIX

## VULTURE - TEAM LEAD

CHRIS  
YAZBEK



### SUPER POWERS:

JAVA  
MOBILE DEV  
ANDROID & IOS  
(OBJECTIVE C)  
MYSQL - DB  
PHP - JS

### BIO:

WHY THIS PROJECT?  
ALWAYS LOOKING FOR NEW CHALLENGES,  
FROM SIDE PROJECTS TO INTERNSHIP  
TO HACKATHONS. NEW IS ALWAYS GOOD  
AND WHERE BETTER TO TAKE ON  
CHALLENGES THEN SCHOOL.  
MOBILE DEV IS VERY POPULAR &  
LEARNING ANY LANGUAGE FOR THESE  
PLATFORMS IS SUPER!!!

## KRAVEN THE HUNTER

ANDREA  
STEFANY  
FLORES  
PORRAS



### SUPER POWERS:

JAVA.  
ANDROID DEV &  
UNIT TESTING.  
C# BASICS.  
HIGH GPA:DRIVEN  
HARD WORKER

### BIO:

FUELED WITH STAMINA JUST LIKE  
KRAVEN, ANDREA IS ALWAYS HUNTING  
FOR NEW CHALLENGES. SHE IS EAGER  
TO EXPLORE A NEW DEV PLATFORM,  
AND READY TO OBLITERATE ANY OB-  
STACLES THAT MIGHT COME HER WAY.

## MYSTERIO

OLIVIER  
BROCHU -  
DUFOUR



### SUPER POWERS:

JAVA.  
ANDROID DEV &  
UNIT TESTING.  
C# XAMARIN.  
WORKED IN A  
AGILE PROCESS.

### BIO:

AS AN ASPIRING ENTREPRENEUR,  
WORKING WITH INNOVATIVE  
TECHNOLOGIES LIKE ESTIMOTES'  
IBEACON AND XAMARIN  
WILL ALLOW ME TO DIFFERENTIATE MY  
SKILL SET TO FACE THE RUTHELESS  
WORLD OF STARTUPS.

## SANDMAN

MAX MOWBRAY



### SUPER POWERS:

C#  
JAVA  
OPENGL

### BIO:

EAGER TO LEARN MORE ABOUT MOBILE COMPUTING, INCLUDING MOBILE APPS AND WEARABLE TECH.

DAY 2 SINCE 390 LECTURE

BUILT A SIMPLE APP IN XAMARIN.

I AM MOTIVATED!!!!!!

## DR OCTUPUS

RAHUL  
MALIK



### SUPER POWERS:

JAVA  
C# EXPOSURE  
AND PART OF  
AN AGILE TEAM  
XAMARIN AT  
GENETEC  
(INTERNSHIP)  
HIGH GPA ::  
HIGH EFFORT ::

### BIO:

RAHUL "DOC OCK" MALIK IS A HIGHLY MOTIVATED STUDENT WITH TWO PROFESSIONAL INTERNSHIPS UNDER HIS BELT (AT BOMBARDIER AND GENETEC). HE IS EXTREMELY COMFORTABLE WITH THE C# LANGUAGE, WITH OO FUNDAMENTALS, DESIGN PATTERNS, AGILE METHODOLOGY AND TEST-DRIVE DEVELOPMENT. LEGENDS EVEN SAY THAT HE HAS EARNED A RECOMMENDATION LETTER FROM DR. TSANTALIS FOR COMP 249.

## ELECTRO



FIRAS KRAYEM

### SUPER POWERS:

JAVA,  
C# BASICS,  
HTML, CSS, JS,  
PHP & MYSQL  
ANDROID DEV

### BIO:

HARD WORKER, HIGHLY MOTIVATED  
NOTHING TASTES BETTER THAN A NEW  
CHALLENGE, AND THIS LOOKS LIKE THE  
PERFECT ONE. EAGER TO LEARN AND  
LOOKING FORWARD TO ADD TO MY KNOWLEDGE A NEW DEV PLATFORM.

GOEN 390 - MINI CAPSTONE

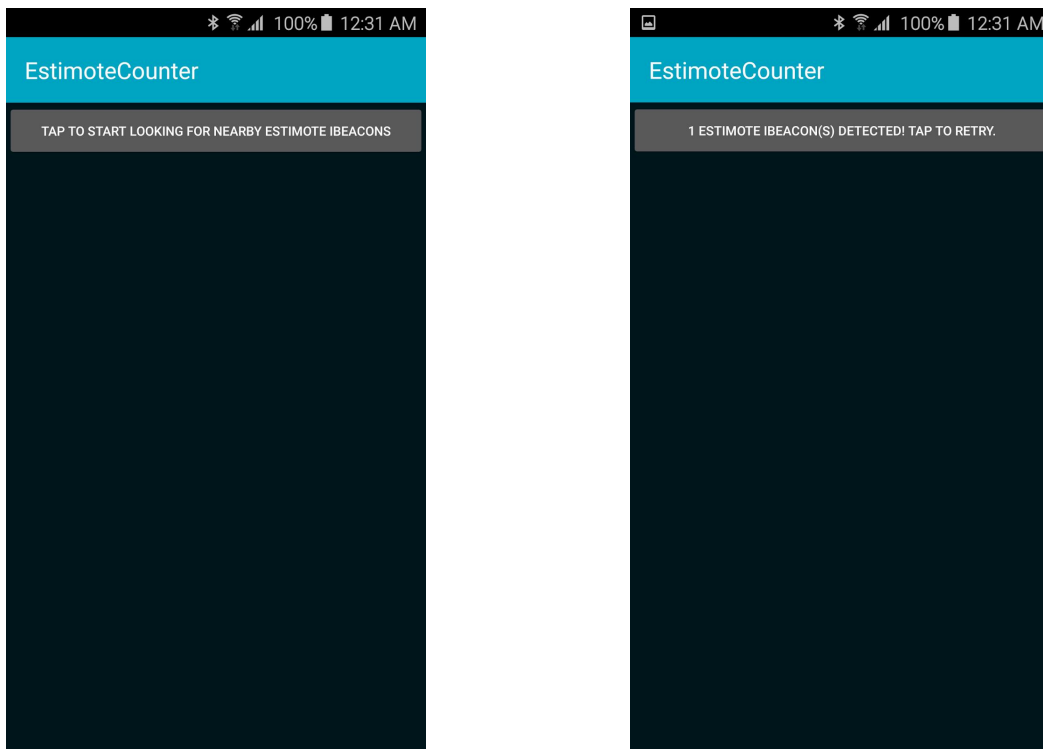
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## COMPLETED WORK

### Prototypical Xamarin app on Android

To better grasp the feasibility and difficulty level of connecting to the Estimote iBeacons using the Xamarin platform, we created a prototype application using these technologies.

First, a blank Android project was created in Xamarin Studio. Then, the Estimote Android SDK library was imported into the project. After, using an Estimote sample application and the official documentation, our app was adapted to connect to the beacons, and to list the number of beacons in range of our smartphone device.



While this application seems to only provide basic functionality, it served as a proof-of-concept in the sense that it showed that connecting to the iBeacons and reading information off them could be done relatively quickly and without any significant problems. It also showed us how easy it is to deploy the app directly onto our phones, and to debug using breakpoints and other debugging techniques in real time.

The source code, more screenshots, and full changelog is available at the github repository page located here:

<https://github.com/mmowbray/EstimoteCounter>



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## Testing

Xamarin supports the creation of Unit Test projects alongside the primary project in a Xamarin solution. Adding such a project is easy, and we succeeded in adding one into our prototype Xamarin mentioned in the previous section.

Furthermore, Xamarin supports a feature called Xamarin Test Cloud, whereby Xamarin will run individual tests of your code on over 1000 devices in the cloud, each time a code change is committed. While this feature is not free, we intend to use the 30 day trial when our code commit rate increases.

## Research

The Sinister Six has already acquired student licenses for Xamarin, downloaded all the appropriate SDKs for Android and iOS development. Additionally, we have successfully installed and tested the Estimote SDK by creating our first “hello world” app.

All gears are set and engines are ready. All hands are on deck. We now await the green light: the confirmation that we have indeed secured the Xamarin platform bid. In anticipation of receiving good news, we have begun drafting UI mockups for the app, for its map design, overall look and feel. Some inspirational images from our “brainstorm” folder:

