**Introduction:**

There is a revolution happening in the technology industry. Mobile Users are demanding more choice, more opportunities to customize their phones and more functionality. Touchscreen interfaces combined with low-cost and universal smart-devices have created the perfect storm for this revolution.

Android is forcing this change, bringing a free and open-source platform giving developers the freedom to develop the powerful mobile applications the users are demanding, while device manufactures want a stable, secure and affordable platform to power there device.

But why choose the android platform?

Android is now holds the majority of the market share in the US and it is quickly expanding into new markets and onto new devices.

Android is hailed as the “first complete, open, free mobile platform”

It can be described as complete because developers of the android platform took a wide-ranging approach, ‘they started out with a secure operating system and built a strong software framework on top that allows for rich application development opportunities.

The android platform is delivered through open source licensing, giving developers unique access to a devices features when developing.

“Android applications are free to develop. There are no licensing or royalty fees to develop on the platform. No required membership fees. No required testing fees. No required signing or certification fees. Android applications can be distributed and commercialized in a variety of ways.”

***Android wireless application development 2nd (2011)***

Android development can be problematic at times and with the ever-growing number of devices, designing apps can be intimidating, but with a good idea and a little determination and innovation anyone can develop a great app that is used by millions of people. But the benefits far out weigh the negative, some of these benefits are;

* Market Share

As a developer you have the opportunity to develop apps for a fairly new market that always growing. The android was behind apple inc. app store ?? figures ?? but is finally catching up due to the ever expanding number of device that support android.

With so many users, it’s never been easier to design an app that can be downloaded and used by real people! Google play, which is the android app store, puts your app right into your users’ hands easily! Users don’t have to go searching the Internet to find an app to install. They just simply go to Google play that is preinstalled on their device, and they have access to all yourapps.

* Time to market

Android comes packed with a application programming interfaces (APIs), allowing a full-featured app to be developed in a very short time period

After signing up with Google play, just upload your apps and publish them. Unlike other mobile marketplaces, the Google play has no approval process. It that easy!!

Theoretically, anyone can publish anything, but it’s good fortune to keep within Google’s terms of service and keep your apps family-friendly. Remember that Android users come from diverse areas of the world and are in all age categories.

* The third benefit I will mention again is how Android is a free and open source mobile operating system which has lead to the rapid growth in the android platform.

***Android Application Development for Dummies (7Summits)***

**Project description:**

The fascinating potential of android application development as a relatively new technology, the increasingly large tablet market in Europe and the lack of a mobile app in the area of technical information for the automotive industry.

The focus of this research project is on android development and how an android application can be connected to an external entity, using either a web service or hypertext transfer protocol. The project can be divided into two sections; the first is the research and the second is the implementation. The research will specifically focus on android development and web services/http requests; a minor part of this research will be web development and database design. The implementation part of this project can be broken down into three parts:

* The database – which will be remotely hosted
* The web-based administration system – which will maintain the data in the database
* And finally the android app – which will display the information in the database via a web service/http

The aim of this project is to provide a complete standalone system that will offer a professional, good-looking functional application.

This application will have to display quite a large quantity of detailed information to the end user, that why I have chosen to target my app at the aforementioned tablet market, this will provide me with sufficient screen size to provide the best user interface and functionality to the end user.

**Research problem:**

Academic research on connecting an android application with an external entity through a web service or http request is minimal and confusing.

This research project attempts to suitable add to the existing research.

But I foresee many problems in the deployment of this research project. I have listed some of these issues below but the main issue I will face is the lack of knowledge I posses regarding android development itself as I have no prior experience with build android apps.

In order to solve some of these problems the following research questions are presented:

Question 1: What functionality to offer the end user?

Question 2: What type of database model to use i.e. traditional relational database such as MySQL or a noSql object model like mongo DB? Another question relating to this is where do I store the database when it ready to go online?

Question 3: How do I make content available to the mobile application? A web service or hypertext transfer protocol?

Question 4: What is the best method and format for data transmission to the mobile app?

Following the research, I will have a better understanding of android development and how to make content accessible to a mobile application. I also will have application, which will be ready to be launched on Google’s play store and to be used by the end consumer

**Motivation**

For me this is a challenging project, as I had no prior experience of Android development. I chose the Android platform because it is one of the fastest growing mobile operating systems on the market and is an open source development.

This project allowed me to gain an understanding of how some of the built in frameworks can be utilized to develop application and also how external entities can be incorporated and connected with my android application.

**Aim and Objectives:**

The aim of this research project is to develop an android application, allowing access to technical information in the automotive industry i.e. manufactures information and service repair details, in the process exploring http-requests and data transmission through XML and JSON

To achieve the aim the following objectives have to be achieved:

1. To create a mobile application on the android platform to provide technical specifications and repair instructions for use in the automotive industry
2. To provide a web based solution for data administration, this will maintain the data available in the app, built using the latest web technologies
3. Analyze the competitors, identifying the main functionality offered and what functionality my android app should make accessible to the end user
4. To identify the different methods of storing and providing data to an android app
5. To investigate http-requests and understand how they work
6. To explore the workings of http-requests by using the android application I have developed, to query to a database using http-requests and return the result back to the app in a useable format
7. To scrutinize methods of data transmission i.e. xml and JSON, and to choose the one best suited to my research project
8. To critically evaluate the performance of my application and discuss the future of Mobile applications

**Scope:**

**Research method:**

Extensive secondary research will be conducted. Acknowledged texts, journals, industry periodicals and white papers, and conference proceeding will be referenced. A critical analysis of the secondary research is applied resulting in an in-depth literature review.

The research will focus on four man categories; android application development, web development, which includes databases, http-request (to connect the two separate applications into one system) and the best techniques and formats for data transmission. Another smaller category is exploring what the competitors product offer and where my project can fit in while offering a similar level of information to the end user. To explore and enhance my understanding of this research, I plan to implement the complete standalone system, which I have discussed above.

**Document Structure:**

This dissertation is divided into six chapters. Chapter two focuses on the literature review of mobile application development. It provides an insight into the competitors in the area (the area being supplier of technical information for the automotive industry), as well as exploring mobile technology and the mobile Internet.

Chapter three cover the background on technologies used in this project. This includes the android platform, developing android application, web development, database design, http-requests and data-transmission.

Chapter four discusses the preparation for application development, explaining how to set up a development environment for both android and web development as well as discussing the principles behind each form of development

Chapter five gives an in-depth look at the implementation of the database, the web administration system and the android application to view the information in the database.

Chapter six will be the summary and conclusion of the project. In this chapter the summary of the entire project will be discussed along with identifying future work