Introduction

This chapter is dedicated to discuss the development process of the solution. Starting with the development methodology, areas such as language and tool selection.

5.2 Software Development-Technology Considerations

In order to develop a successful system which meets the end user expectations, it is very important to use appropriate tools in the development process. Use of any inappropriate tools will only leads to develop a system with unnecessary errors and faults and it can affect the user expectations in efficiency and reliability of the solution. It is very vital to use appropriate computer language and any other necessary tools in order to develop a successful system. So these technologies and tools will help to develop the system within a minimum development time. The main objective of TBMVCS is to do a fast, easy, accurate claiming process via tablet pc. And this is done by connecting to the company database via web service with the use of mobile networks. So it is very important to consider some factors such as platform supportiveness and the efficiency of the system. And in order to meet above mention factors we must use the most appropriate tools available in the market to develop the system.

Technological considerations - followed during the development of the system

• Efficiency and Performance

• Re-usability and flexibility

• Object oriented development support

3.3 Development Language Selection

In modern programming field there are many programming languages and many more are introducing day by day. Core function of the system is vehicle claiming through the tablet pc, researchers have been done on many software development languages in order to recognize the appropriate language that helps efficient data retrieval and updating from the company database via web service. Since the entire solution has a 3 main components namely the ground office system, web service and tablet application it was vital to select a language that will support all these three feature so that it will reduce the learning time of different languages. Several aspects such as build powerful web based applications, powerful, flexible, Simplified Data Access, platform dependency, build fast mobile applications were considered.

For the development of ground office system main technology considerations were ASP.net platform, java platform and PHP platform. Java and asp.net provide greater object oriented programming feasibility while PHP work as a fast backend server scripting language. Visual Studio IDE provide ASP.NET development environment with rich inbuilt functionalities for faster programming. As for the web service it was considered about coding a Visual studio web service, PHP web service and also WCF web service. WCF was considered to be a far better option than other web service types Microsoft has provided.

Another key part of the solution was the development of tablet applications. Main platform considerations were android, windows and IOS. In order to develop an IOS app it requires to learn Objective C language and it also need a Mac computer which are far more expensive than the others. Android is an open source platform with free available tools. There are lot of resources available for android development as well. Windows tablet pc was feasible to build on the same environment which was used to build the ground office system and the time taken for the learning curve was fairly less than android. Visual studio provides an in built emulator for testing purposed as well.

After considering several options ASP.Net was selected as the main programming platform to develop the ground office system since ASP.Net provides an easier and stable environment to create great web applications and it supports object oriented development greatly. Although it has to be purchased for commercial use, it can be purchased for free for university students from Dream spark. Bootstrap, a free CSS library was use to design the interfaces. C# programming language was used to implement the business logics in the backend of the system.

As for the initial step tablet application was developed for windows surface tab. It is using XAML for interface development and C# for backend coding. To connect the Tab application and the web system, WCF web service technology was selected since it can be developed using the same tools which are used to develop the system. Visual Studio 2013 was selected as the main tool for developing the solution while using open source text editors such as brackets were used wherever necessary.

3.4 Database Selection

Database which is most important aspect of the overall system which handles all the relevant details related to insurance as well as claims. In order to fulfill the need of database operation this system has been used SQL Server Management Studio which enables to access and manage the database engine. Another reason for using this was it was free to purchase using Dreamspark account. Management Studio brings graphical tools for database management together with a rich development environment. Database is maintained at a central cloud server such that it can be accessed from wherever necessary.

Development Tool Selection

After selecting the development language and database type necessary tools were selected for the development. This includes tools for build and debug environment, integrated development environments, database servers, plugins and frameworks and so on. Some of the key tools which were used are described below.

Visual Studio 2013 Premium Version

Visual Studio was used as the main development environment and IDE for the web application, tab application, web service and the smartphone application. In order to test and emulate the tab application and smartphone application separate emulate tool set provided by Microsoft was installed. This provide very rich tools for debugging which made the developer task less complex. This was downloaded for free from Microsoft Dreamspark.

DevExpress Developer Framework

DevExpress framework was integrated to the visual studio since it provided very powerful tools for representing and manipulating data grids. DevExpress is a software product company that providing the UI controls to the Borland Delphi, and Active X controls to the Visual Studio to make easy development and used for high quality user experience.

Gimp

This was used for photo editing and icon creating works. It is the Free and Open Source, cross-platform image editor available for GNU/Linux, OS X, Windows and more. GIMP provides the tools needed for high quality image manipulation. From retouching to restoring to creative composites, the only limit is your imagination.

Bootstrap

Bootstrap was used for front end development and styling purposes. With Bootstrap, you get extensive and beautiful documentation for common HTML elements, dozens of custom HTML and CSS components, and awesome jQuery plugins. It is an open source styling library.

Microsoft Visio 2013

Microsoft Visio 2013 is used to data modeling, develop the diagrammatical designs and data analyzing designs to the project. Mostly used in the designing stage of the project as well as system analyzing stage.

Font Awesome Icon Font

Font Awesome gives you scalable vector icons that can instantly be customized — size, color, drop shadow, and anything that can be done with the power of CSS. This is an iconic font designed for Bootstrap

Metro UI CSS & JavaScript Frame Work

The front-end framework for developing projects on the web in Windows Metro Style

Metro UI CSS developed with the advice of Microsoft to build the user interface and include: general styles, grid, layouts, typography, components, and built-in icons. Metro UI CSS is open source and has MIT licensing model.

SQL Server 2012

In the Enterprise industrial level with the .Net develop framework based development and most recommended database engine is Microsoft SQL Server. As the current requirement to develop the application, .Net framework has been used. According to that, as bettor database environment, SQL Server has been selected.

Visual Studio Code

Visual Studio Code is a code editor redefined and optimized for building and debugging modern web and cloud applications. Visual Studio Code is free and have stylish UI design which offer various text editing options.

A custom development has been selected as the development strategy in order to develop the system. This method has been selected after considering some vital factor such as complexity of the system, development time, etc. Main reason of using this development strategy is building the system interfaces at initially which will used to develop system prototypes and develop the databases with accordance with interfaces in order to develop the web service in a fast manner. Then the tab application was developed while developing the some modules of web application as well.

Components that has been recognized as vital and to be built at first are,

* Database Development
* Interfaces of all components
* Policy information module and vehicle spare part module of web application
* Web service
* Tab application
* Claim approval module
* Rest of the web application components
* Mobile application