**SDTA Team Solution 4 – Raima Database Manager and C/C++**

Solution 4 is composed of the use of a *Raima* database server and the use of the compatible C and C++ programming languages. The SDAT team decided to use the *Raima* database because it is cross-platform, widely use and popular. *Raima Database Manager (RDM)* is a database management system that is currently divided into several environments but we will focus on the usage of the following: *Desktop & Server*, *Embedded*, and *Mobile*. The *Desktop & Server* environment is used for the development of applications in environments such as backup systems and security applications. The *Embedded* environment is used when building solutions to real-time operating systems. The *Mobile* environment is used for applications for smart phones and tablet devices. These three environments will be used and incorporated in the system. *RDM* works under the principle of having tables where each has a special field called a key, which identifies each row as unique. The keys can be used to establish a relation or connection between tables. A relevant feature offered by this database management system is the ability to be ported to different embedded or real-time operating systems known as cross-platform. It is difficult to assess the storage space that will be required for a standard operation since the exact amount of processed data for either is unknown.

As mentioned before, this solution is implemented using the C and C++ programming languages. These programming languages are compatible with the RDM and since they are very similar to one another, and both languages once they are compiled into machine code can work very closely to the lower levels of the computer system. This is good, because since the system doesn’t need to interpret the instructions for the program, the program can then execute and perform at the near real time rate that Dr. Salamah mentioned in the interview with him. Using these parameters, the developing process of the program must be done carefully since the possibility of failing catastrophically and potentially harming the computer system exists. Since the SDAT team does not have much experience with programing in C or C++ the Java language will be used as intermediary, where some code will be produced in but will then be translated into C. The incurred cost for the general programming is nothing since there is no software or development environment needed start the implementation of the proposed system, the main cost to be incurred would be on time as the development team would need about two to three weeks to gain a deeper understanding of the C/C++ language and become familiar enough with it to become confident programmers in the language.

The total cost of this solution will include the monetary cost of the *Raima* hardware, and the time it will take the software team to learn the language of C and C++ and implement the proposed system. This will be in addition to the costs of time and money if the client requests an optional mobile app solution.