Algurashi, Husam (supervisor. Brian Palmer)

Local Shop web application

The use of websites in electronic commerce (ecommerce) today has become important for companies to be able to gain access to a larger customer bases through the use of their own resources. Websites are the main platform for business-to-customer (B2C) transactions; in ecommerce infrastructures such as the Amazon website are widely used. Additional important considerations in such infrastructure are security (payment) and privacy (data), and will also be addressed in this thesis. Core to this project is the provision of an online platform for customers to transact and exchange goods and services with each other. Customer-to-customer (C2C) transactions are becoming increasingly important and relevant today, e.g. EBay for auctioning unwanted/ill-fit goods and other channels. C2C ecommerce will be the main theme of this project which aims to support trade between people, and will involve the design and implementation of a C2C online trading platform and integration of a B2C framework.

The concept of the website development is to help people and organisations to improve their ability to grow and prosper from trading online. The project seeks to develop this software to make communication between people easier for selling, buying, trading off, and exchanging their property and their products without needing to go to the store or sundry market. Development will make use of the agile methodology which is proven to reduce the risk of development and reduce time. The agile methodology works in each iteration as an entire software project: including planning, requirement analysis, design, coding, testing and documentation. According to the results, the distance between sellers and buyers is very important to enhance the ecommerce technology and consolidate the social relations between people of a common neighborhood. A review of the literature finds that trading websites improve ecommerce technology, decrease pollution, and increase community relationships.

The study makes use of qualitative and critical input from participants who agreed to test the website. An analysis was conducted based on these results which confirms the strength of the applications as an exchange platform and also provided useful feedback with which to progress its development in the future.

Khalifa, Osama (Supervisor: Hans-Wolfgang Loidl)

The Performance of Cryptographic Algorithms in the Age of Parallel Computing

This project addresses the problem of enhancing the performance of strong cryptographic algorithms, which are widely used and executed by almost all internet users. The project uses parallel computing as a means to improve performance. Especially nowadays that multi-core computer machines have become commonly available. Since the security level provided by most cryptographic algorithms depends on the difficulty of solving some computational problems, the developments in computer systems manufacturing will
threaten people’s security. Thus, it is very important to cope with this development and increase the security level by using stronger cryptographic algorithms with longer keys which in return will take longer to encrypt and decrypt data but also a much longer time to hack the cipher text. This project makes it possible for several internet users to use longer keys without being hampered by the bad performance. The resulted parallel algorithm(s) will be assessed by measuring the scalability and speedup features, moreover, it will be able to adapt to the increasing number of cores in a dynamic way.

Wang, Kan (Supervisor: Dr. Helen Hastie)
Personal Health Monitoring

This project report will investigate and analyse some literatures, researches and software evaluation about Personal Health Monitoring. Prior to designing the software, it is necessary to do some research about these areas. Consequently, this project report is divided into ten main parts: introduction, literature review, requirement analysis, legal and ethical issues, project plan, software design, software evaluation, limitations and recommendations, and conclusion. And also, in each part, there are some critical issues will be analysed. In literature review part, at the beginning, some triggers of asthma which are related with weather, air pollutants and pollen will be investigated and reviewed. Secondly, it will introduce previous software and hardware about personal health monitoring. Thirdly, with some references to the study of current interface design on mobile device will be illustrated. Fourthly, the research on the practical features of usability will be analysed and reviewed in different points of view. Finally, usability research will carefully discuss. Requirement analysis will indicate four important areas: design objective, functional, non-functional, and hardware. Legal and ethical issues will be proposed which is related with this project. Software design is an outline for describing what the structure of this software is. In software testing phase, it will find out the software whether there is any problem during testing. Software evaluation is an important issue which allows some participants to use the software and give some feedback via questionnaire. Through analysing results, it is quite useful for future improvement and recommendation.

Watt, Malcolm (Supervisor: Phil Trinder)
Benchmarking a New Parallel Language Implementation

The advancement and emergence of parallel technologies has enabled new areas and problems to be solved which would have been impossible under sequential computing. The growth in parallel architectures such as multi-core and many-core systems has enabled commercial and scientific industries to exploit the full use of parallelism. However, to truly take advantage of parallelism, a high level of dependency rests on the programming of the parallel technology. There is a large range of parallel languages used to program these parallel systems each with their own strengths and weaknesses. This dissertation provides a performance comparison of three parallel programming implementations on a set of parallel program benchmarks. The three languages used are Glasgow Parallel Haskell, Eden and the newly implemented Glasgow Distributed Haskell. The results help identify the performance of the new GdH- implementation against two similar parallel Haskell implementations and help create further work on the GdH- implementation.
This dissertation was achieved through carrying out a literature survey on parallelism exploring both parallel programming and the three individual parallel functional languages used in this project.

Three benchmark programs were developed for each of the three languages which tested three different parallel paradigms on each language.

These benchmarks were executed on two different multi-core architectures to calculate the median runtime, speedup and variability on each implementation.

Once all programs were executed the data was collated to give a full comparison of the parallel languages.

This comparison helped to provide a conclusive analysis of the GdH- implementation’s current true performance.