Software Engineering Fall 2016

Project Proposals

Your team is expected to design and implement a demonstration of one of the following systems. You should keep in mind that below descriptions are aimed to give you a general view of these systems. You are expected to analyze the project domain thoroughly to *determine the essential features of your system* and to *extend your system with additional useful features* that will help you get ahead of existing systems and competitor teams.

Traffic Congestion Control System (TCCS)

Traffic congestion is one of the main problems of cities that causes slower speeds, longer trip times, and increased vehicular queueing. Besides causing an economical loss, it has also direct effect on people's life quality and psychology. Traffic Congestion Control System (TCCS) will be an assistant software for vehicle drivers that aims to reduce the traffic congestion by encouraging them to use less crowded ways.

TCCS will be a GPS-assisted system that makes vehicle aware of its current location and which direction it is going to. It also can get real-time traffic flow information from a server so it can keep track which roads are crowded and which are more suitable. By using these information, TCCS is expected to recommend less-crowded roads to its users, and reward them by giving some special benefits if they prefer these recommendations.

The TCCS system should:

- Aware of real time traffic flow information and adapt itself to the changing conditions.
- Produce several route plans for a given destination (shortest distance route, cheapest route, shortest time route, maximum bonus route etc.).
- Offer bonus or some reward for alternative, less-crowded roads to the users.
- Give users some rewards or bonus if they prefer the recommended roads. (e.g. users can use collected bonus to get a discount at petrol stations, get discount on car taxes, etc.).
- Allow users to keep track of his/her activities (routes, collected/spent benefits, usage statistics etc.)
- Allow users to be informed about existing or upcoming rewards.

The use case that is to be implemented for TCCS project is monitoring the activities of users such as collected/spent bonuses, routes they used etc.

Electronic Health Record System (EHRS)

The lately technological improvements in information technology (IT) have made a great impact on medical organizations. Today, health information systems are used in virtually every hospital. Health information technologies are used mainly to increase efficiency, quality of service and to reduce costs in hospitals.

Electronic Health Record System will provide the doctors and their staff with an electronic copy of the patient file. Personal information (id, name, birth date, etc.) and medical information about the patient will be stored and managed by the system. Medical information may consist of any health related information related to a patient. Some important medical information the system supports can be listed as examinations, patient stories, symptoms, tests (blood, urine, etc.), diagnosis, treatments and prescribed medications. The system should also be able to

- assist physicians in diagnosing and treating a patient by providing diagnosis and treatment recommendations according to the provided information
- remind patients of an upcoming event (any appointment, periodic check-up, periodic test, etc.) by sending emails or notifications
- track information for billing purposes.

The use case that is to be implemented for EHRS project is diagnosis and treatment of a patient by a physician. The physician should get recommendations (assistance) from the system for diagnosis and treatment.