King Saud University
Information Technology Department
College of Computer and Information Sciences

Year 1433/1434
Semester 2

Proposed Projects for the Second Semester
Graduation Project Committee

Project # 1

Supervisor Name : Dr Hala Mokhtar email: hmokhtar@ksu.edu.sa

E- Vote: a mobile system for online voting

Information and communication technology (ICT) is increasingly used by universities and other higher education institutions around the world to support teaching. Voting systems are a popular and powerful interactive teaching aid for use in all levels of education. They can make an excellent addition to the classroom learning experience, making learning fun, interactive, measurable and recordable. Classroom voting enables the lecturers assess the impact of each lesson on both the individual and the group immediately and autonomously.

This project aims at developing a voting system that the students can use via their mobiles or their laptops in classrooms. The system can be used by lecturers to record students' activities through the year. It can also be used in council meetings and assessment of presentations.

Project # 2

Supervisor Name : Dr Fatiha Bousbahi email: fbousbahi@ksu.edu.sa

Transportation management system: King Abdulaziz Hospital:

A system which can manage many trips per day for many vehicles.

A web application with many functions: adding, editing and deleting the passengers, staff and the vehicles routes. In this application a person can be register as a user and he can manage the vehicles routes and the staff, passengers' details. He can add a vehicle and its details including vehicle route details. User can also add the details of the staff and their duty time in the system. This application will use geo-location by GPS to locate the vehicle.

Requirements to consider are:

1. the user (staff) from different departments can fill e-form for requesting vehicles for transport.
2. The system shall enable the user to generate reports regarding (workload for the driver ,vehicles)route , maintenance , …etc
3. emergency cars can trace route .
4. The system should have database containing :
    1) Vehicle / care information (car , module , license , ….)
    2) Driver information (name , license , mobile no , phone no , …)
    3) Department information (code , description)
    4) Staff info (staff no , department , staff name ,position …)
    5) Transport request (request no , day , transport type , transport leave time , transport back time, ….etc)
    6) Rroute information .

Project # 3

Supervisor Name : Dr Souad Larabi Marie-Sainte   E-mail: smariesainte@ksu.edu.sa

Teaching for Primary School

There exists many websites containing either online activities or Islamic edutainment for 4/6 year-old child. This project proposes a mobile application that includes both activities and Islamic edutainment. The idea consists in designing and implementing a computer based learning package to develop number, letter and Islamic recognition skills in 4/6 year olds to be used in Saudi primary school environment.
It consists in developing:

- Early mathematics skills such as: number recognition, small sums,
- Letter recognition: coloring and painting the characters,
- Words, Reading, Spelling,
- Culture work: identification of animals, fish and the nature in general …
- Islamic activities:
  - Learn different ``duas`` (morning and evening, eating, waking and sleeping,…)
  - Learn the short `` surates``
  - Learn good behavior through videos and stories
  - ….

Project # 4

Supervisor Name : Dr Souad Larabi Marie-Sainte   E-mail: smariesainte@ksu.edu.sa

Managing Exam Schedule

عمل برنامج يقوم بتنظيم جداول الاختبارات للأقسام حيث يشمل كافة البيانات من أسماء المقررات ووقت الاختبار والقاعة الخاصة بالاختبار وأسماء المراقبات والمشرفات على الاختبار، وينظم توزيع المراقبات وتبادلها بين الأقسام، وتحرير المخالفات من تأخير وعدم إحضار البطاقة الجامعية، ويسمح بعرض التقارير المختلفة من جداول الاختبارات وجداول المراقبة.

A system that manages exam schedules for the education department at King Saud University. This will include the data about the courses, exams times and dates, exam rooms, and invigilators. The system will organize the invigilation's load for all staff members, late records for invigilators, late records for students, producing daily reports about the exams

Project # 5

Supervisors Names :Dr. AbirBenabid Najjar (KSU) & Mrs. Mervat Rassan (KAUH)
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SMAART: A System for Medical Animations creation & visualization using Augmented Reality Technology.
*This project will be conducted in collaboration with the IT team of King Abdulaziz University Hospital (KAUH). It offers the students the opportunity to deal with a real life problem and to apply their skills to solve community issues.*
The objective of this project is to create medical animations that would help patients to understand procedures and discharge instructions. This would increase their satisfaction and improve health literacy, and also improve nursing and physician workflow efficiencies.

A **medical animation** is a short educational film, usually based around a physiological or surgical topic and used to educate patients during hospital stays. These animations may help them to gain a deeper understanding about medical procedures or pharmaceutical mechanisms of action in an entertaining and attractive way. This project aims to design and implement:

1. A web-based application that allows the medical stuff to easily create customized medical animations for use at the different points of care.The tool includes a selection of characters, backgrounds, scenes, voice bubbles and text. The resulting animations will be displayed on the hospital's website, in doctor's office workstations, and in the waiting areas of the hospital, as a way to educate the audience on a medical topic.

2. A mobile application that uses **Augmented Reality** to visualise these animations and make them more interactive. Using this application, the user can simply hold his mobile device up to a given poster or a booklet and watch the picture come alive with 3D models, videos and animations.
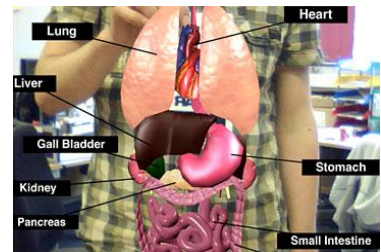
Project's requirements:
- Access to a desktop to be used for software development.
- Web hosting would be provided by King Abdulaziz University Hospital.
- iPad or Android/iPhone Mobile Phone
- An augmented reality SDK (Software Development Kit):Aurasma/Vuforia/ Metaio/ D'Fusion…

Project Requirements:
- **Software:**
1. An Android/iOS SDK (Software Development Kit)
2. An Augmented Reality SDK: (Students can choose one of the following: Aurasma/Vuforia/ Metaio/ D'Fusion…
- **Hardware:**
1. An Android/iPhone mobile phone or iPad
2. A desktop to be used for software development
- **Prices:** The students should have their own hardware

Project # 6

Supervisor Name : Inst Ameera Almasoud	**email:** ammalmasoud@ksu.edu.sa

Organizing the practical training system for the college of education in KSU with community institutions

Organizing the practical training is one of the tasks that burden the supervisors in the education college in KSU and affect the performance of the trainee students. Also, this affect on institutions negatively due to the poor organization and the delay in directing students to them. Education College requires a system that helps their supervisors in determining the institutions' needs and all their contact information and location on the map to simplify the communication process.

- The proposed system should cover all the community institutions which provide training for students such as schools, hospitals and health centers.
- Institutions can access the system at the beginning of each school year to update their needs (number of trainees in each field).
- Supervisor can guide the students to these institutions on the basis of taking into account the circumstances of the each student.

This will reduce the supervisors' efforts and the delay in directing students to community institutions.

Project # 7

Supervisor Name : Inst. Eman Alattas	**email:** ealattas@ksu.edu.sa

Memory Plus +

This project will be conducted in collaboration with Handy capped Centre at King Saud University.
It is Arabic tablet application for diagnosis and improvement short term memory and long term memory. This system could be of great help in improving the short term memory and long term memory especially for university students with weaknesses in learning skills and having learning difficulties. This system could help in identifying the level of memory weakness these students have in order to help in designing suitable improvement techniques. The system is serving the Disability Center at King Saud University.

Project # 8

Supervisor Name : Dr Sana Alghozali,	**email:** sghouzali@ksu.edu.sa

Speech to Mathematical Expression Calculator:

This project will be conducted in collaboration with Handy capped Centre at King Saud University.
The goal of this project is to implement a web application to enable the user to enter calculations and mathematical equations by speech. The application should also enable the user to solve mathematical problems such calculation of time, distance, surface, mass and size while providing feedback to the user through electronic evaluation form and chart.

Project # 9
Supervisor Name : Sana Alghozali,   email: sghouzali@ksu.edu.sa

Virtual Reality Library Visit Prototype

The goal of this project is to implement a prototypical virtual time journey to the campus library. The user is able to navigate the virtual scene of the library on a panorama projection system using a trackball and preferably touch screen user interface and mobile friendly. The application would help the user as well to locate a reference title by entering its code. The implementation of this application can be conducted using Unity3D [GUI] and 3D Max [3D modeling].

Project # 10
Supervisor Name : Dr Rabia Jafri   email: rjafri@ksu.edu.sa

Mobile Vision

To develop an application that allows a blind person to take a picture of an object in his surroundings using his mobile phone. The picture is then sent to a remote server equipped with software that recognizes the object in the picture and sends back the object's name to the mobile phone. The name of the object is then transmitted to the user via speech.
Technologies to be used: Any flavor of C (C++, C, C#) or Java programming language

Project # 11
Supervisor Name : Dr. Nazha Abed   email: nabed@ksu.edu.sa

Hajj Organizer

Mobile system that includes different functionalities needed by the pelerine when traveling and during the Hajj:

- Reminder of Miqat
- Reminder before prayer times
- Localization of qibla direction
- Reminder of the invocations needed at each step
- To do list of the activities needed the day of Al-Aid
- Notification/ definition of the in the limits of machair (Arafat, Mina, Muzdalifa..)
- Orientate to the direction of jamarat, Makka, nima
- Path finder when lost (by defining a destination)

Project # 12

Supervisor Name : Dr. Nazha Abed   **email:** nabed@ksu.edu.sa

Diagnosis and Improvement of Visual and Audio Cognition
This project will be conducted in collaboration with Handy capped Centre at King Saud University.
This project is a threefold project. First, this project aims at improving the visual recognition (compare and contrast between different mathematical shapes). Second, the project also aims at improving the synchronization between visual and physical movements (electronic painting, connecting shapes, and assembling parts of a given shape. Finally, the project aims at improving the audio recognition skills by compare and contrasts between different sounds, and recognizes the sequence of sounds.

الجزء الأول :
1/ تنمية مهارات التمييز البصري (التطابق والاختلاف)

مثال (تمييز أوجه التطابق والاختلاف بين الأشكال الهندسية ، الصور ..الخ)

2/ تنمية التآزر البصري الحركي

مثال (الرسم الالكتروني،التوصيل، التجميع والتركيب)

الجزء الثاني :
1/ تنمية مهارات التمييز السمعي (تمييز الأصوات)

مثال (تمييز أوجه التطابق والاختلاف والتتابع السمعي للأصوات)

Project # 13

Supervisor: Dr Shurug Alkhalifa   **email:** salkhalifa@ksu.edu.sa

Online Student Recommendation Letter Generator
The students will design and implement a user-friendly online recommendation letter generator to assist instructors in writing, printing and handing out recommendations to their students.
Proposed features include, but not limited to, the following:
- Log in instructor.
- Allow instructor to upload students marks as an edugate exported excel sheet.
- Students submit recommendation requests by specifying student name, id, email, instructor, course, grade (optional), and year taken. The student can also upload transcript so the instructor can view it.
- Allow instructor to view recommendation requests and either reject or start the process of generating the recommendation by simply selecting student attributes. The system should then check student grade against the grades imported from edugate and generate a textual recommendation complete with official paper header, official stamp, instructor signature (all optional) then either print recommendation and send email notification to the student or send the recommendation letter as a pdf attachment to the student. The instructor will be allowed to edit the recommendation text before sending it.
- Allow instructor to save/resume unfinished recommendations.

Project # 14
Supervisor Name : Dr Meriam Elkefi   **email:** elkefi_meriam@yahoo.com

A viewing's rate measurement plugin for Linux based TV receivers

While some TV companies delegate consulting companies to measure their viewers' rate, other TV companies deploy a more sophisticated solution. This project consists on automating the TV viewing's rate measurement and to make it publically accessible through the Internet. The system to develop contains two parts:

1-The TV Receiver part: a plugin will be developed added to open source linux based receivers and send the current channel name and some other information to the second part of the project.

2-The server part: contains a DB storage system to receive and save data sent by the plugin which is specified in the first project part and a web reporting tool that offers to the Internet user the opportunity of extracting statistics and plotting charts about TV viewing's rate through a customizable web GUI

Project # 15
Supervisor Name : Inst Afnan Alsubaihin.   **email** aalsubaihin@ksu.edu.sa

L&F: Virtual Lost and Found Box

Original idea by Ms. Rana AlOmar and Ms. Wee'am AlRashid

The virtual lost and found box will be a Rich Internet Application (Web based application) that enables the users to provide L&F boxes that is specified for a specific building and/or event. Users then can post to the L&F box once they find any lost items. Also, users can browse the inventory of lost items and communicate with the finder to claim an item they've lost. To ensure the validity of the claim, the find will submit a short quiz that the claimer should answer correctly. The service will also enable users to search the archive of lost items based on many relevant criteria.

L&F Box will be programmed using web technology as a desktop website. Furthermore it will use responsive web design technique to make it mobile-friendly. In this project, the student will learn project management, gathering requirements, web design cycle, advanced web technology and responsive web design. This project is expected to have a great potential once it is published on the web due to its originality.

Project # 16

Supervisor: Inst. Nora Alrossais& Mrs Mervat Rassan (KAUH)   **email:** nalrossais@ksu.edu.sa

Wokflow Management System for Department Purchases in King Abdulaziz Hospital
This project will be conducted in collaboration with the IT team of King Abdulaziz University Hospital (KAUH). Workflow is the management of who exactly is working on a content element, what exactly they are doing, and when. So the main issue for a workflow management system is answering the question "*who must do what, when and how*".

Goal: Enables purchasing department in King Abdulaziz Hospital to easily route electronic forms online in accordance with their defined business processes. Reduce paper handling and manual routing to eliminate errors and shorten the lifecycle of forms processing. Also, ensures the right users can track and have access to the right information when they need it. The routing provides automated email and SMS notifications. It is an Enterprise Request Management (ERM) solution that helps organizations reduce cost and improve employee satisfaction by providing process definition, automation and visibility for areas such as IT, HR, Finance, Sales, Marketing and other services. The solution allows you to pre-populate an e-form, make a change in an isolated section of the form, automatically kick-off a review and approval cycle, instantaneously track and audit all tasks involved.

Project # 17

Supervisor: Dr Henda Khorfi & Mrs. Mervat Rassan (KAUH)   **email:** houertani@ksu.edu.sa

Eye x-rays Archiving System (King Abdulaziz Hospital)
This project will be conducted in collaboration with the IT team of King Abdulaziz University Hospital (KAUH). The project consists on a Picture Archiving and Communication System (PACS) for eye x-rays images. PACS will enable eye images such as, x-rays and scans to be stored electronically and retrieved and viewed on screen, accessed by doctors and health professionals.

Project # 18
Supervisor Name : Dr. Lamia Mohamed Ketari   **email:** lamia.ketari@gmail.com

BabyTechMontoring (Subject to change..)

The aim of this project is to design and implement a mobile application (dedicated to run on a mobile device with Android OS) in order to assist parents to keep track of health related details for their babies ranging from basic information (date of birth, weight, height blood type, vaccination schedule, doctors' appointments, illnesses, allergies), as well as recording and managing their kids' memories (first teeth, first smile, first walk, birthday, etc..). The application will provide interactive alerts and charts to the parents about their baby's growth trend, vaccination reminders, etc. Also, it will allow the parents to access all health details of their babies and their kids' special memories in an easy and fancy way, as well as giving them the chance to compare between their kids' growth trends(similarities, differences) and preventing them about possible food or vaccination allergies.

Project Requirements:
- **Software:**Android SDK (Software Development Kit) for Android libraries and for the Android Virtual Device, IDE used is Eclipse version 1.4.1 with ADT (Android Development Tools) plugin, and SQLite database browser.
- **Hardware:**Mobile device with Android OS