**Dear Students,**

Few basic concepts of mobile devices, usability, and description of different mobile applications are given. You are required to understand these concepts as well as use the below listed mobile applications on your mobile device. Try to accomplish the functionality available in their description.  There will be a Skype session in the next week from Monday to Friday (8th May to 12th May).  You are required to discuss with me any of the given text. You may discuss with me the procedure to minimize your confusion. On Monday, I will upload some other helping material on LMS.  This is very crucial time. Your actual participation will highly be appreciated.

**Mobile devices:**

The mobile device can be defined as a small gadget with some processing capabilities,

 There are different kinds of mobile devices, where touchscreen-based devices are the most popular among others. By installing mobile applications known as “apps", the mobile device functionality can be expanded almost without any limits. Due to the increasing popularity of mobile devices, the chances of developing applications and user interfaces are also increasing. At present, there are a large number of applications available in each mobile devices, and most of them are becoming more complex, involving sophisticated user interface. Due to the enormous range, the development of each promising application becomes a challenging task for the developers. While dealing with the applications, it should not just provide useful functions, but also be user-friendly. In order to achieve this, a high degree of usability is desired in the user interface of the application. Therefore, there is a need for usability evaluations to improve the mobile device application interfaces to make the application easy and user-friendly. Basically mobile devices were introduced for long distance calling for the users but nowadays, it used for many more purposes depending on the user group. For example, researcher use for testing, evaluator use for evaluation, children and students use it for learning new technology, entertainment, etc. Few examples of the smartphone are Samsung Note2, Samsung s3, Apple iPhone.

There are different type of the mobile devices.

**Smartphones:**

Smartphone device are a combination of feature phone and a handheld device with similar display size but reduced functionality compares to the handheld devices. Basically, the smartphone was introduced with more computing capability power, network connectivity in the form of GPS connection and many other functionalities. Afterward depending on increasing users demand it upgraded with touch sense display, multimedia support and Wi-Fi connectivity.

These types of smartphone devices are mainly used for the evaluation of this work.

**Usability:**

Usability is the key point in the human computer interaction. When considering the usability, we cannot simply say that this is not good because we don’t like this situation or scenario. One need to give a proper answer what are the reason for not taking that point into consideration. General definitions of usability by the ISO/IEC 9241 is as below:

“The extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency, and satisfaction in a specified context of use”.

Effectiveness: to complete the user goal with accuracy

Efficiency: How much effort in terms of resources expended to complete the user goal with accuracy.

Satisfaction: feeling of comfort while using application.

**Mobile Applications:**

Mobile applications are available on LMS in a folder named as: “context aware applications”.

You can download these application descriptions with screen shots and task detail. These applications can easily accessed from the link : <https://play.google.com/store/apps/details?id=arun.com.jarvis&hl=en>

Just search the application name and system will let you allow downloading and installed application on your mobile phone.

You will find a complete procedure to perform different tasks on each application by following the descriptions available on LMS with name “context aware applications”. May 03, 2017.

**Context Awareness Related concepts:**

Context-aware computing1 is a mobile computing paradigm in which applications can discover and take advantage of contextual information such as user location, time of day, neighboring users and devices, and user activity.

 Most notably, interaction paradigms with today’s devices fail to account for major differences between the static desktop and mobile interaction models. Computing devices are now often used in changing environments, yet do not adapt to those changes very well. Although moving away from the desktop model brings a variety of new situations in which an application may be used, computing devices are seldom aware of their surrounding environments. It has been suggested that enabling devices and applications to automatically adapt to changes in surrounding physical and operational environments can lead to enhancement of user experience

 The focus is mainly on understanding and handling context that can be sensed automatically in the physical environment and treated as implicit input to positively affect behavior of an application.

This has led to context-aware computing, defined in two ways: firstly, active context awareness automatically adapts to discovered context by changing the application’s behavior; and secondly, passive context awareness presents the context to the user on the fly and/or store it for the user to retrieve later.

Schmidt6 provides an example of designing a user interface for a wristwatch. The watch is used both indoors and outdoors, in the dark as well as in sunlight, when running to catch a bus or when attending a boring lecture. A good user interface designer will create varied user interfaces for each situation. The context-aware computing approach enables one to create a context-aware watch, where all situation-optimized designs are combined in a single design.

  

FIGURE 1: Design sketches that illustrate time visualizations in different contexts. (a) For users running to catch a bus, making it easy to see the minutes in large fonts. (b) For boring lectures and meetings, showing a countdown to the end, with some information to engage the user. (c) Visualization giving only a very coarse idea of the time, similar to information you get from the sun, to use for example when hanging out with friends – when time does not matter.

Indeed, context awareness is most relevant when the environment is highly dynamic, such as when the user is mobile.

Schilit, Adams and Want11 argue that the only important aspects of context are user location, the user’s neighbour, and resources near the user.

The environment is thus three-fold:

• computing environment, such as available processors, devices accessible for user input and output, network capacity, connectivity, and cost of computing;

• user environment, such as location, collection of nearby people, and social context;

• Physical environment, such as temperature, lighting and noise levels.

The goal of context information acquisition should be to determine what a user is trying to accomplish. Because the user’s objective is difficult to determine directly, context cues are used to help infer this information and inform an application on how best to support the user.

Four essential characteristics of context information: identity, location, status (or activity) and time.

For example, a context-aware system can detect that a user never responds to phone calls whilst driving, and thus propose automatically to transfer all incoming calls to the user’s voicemail when they are driving.

Dey4 propose three basic functions that should be implemented by any context-aware application: presentation of information and services, automatic execution of services and storage (and retrieval) of context information.

Examples here are showing a user their location on a map and possibly indicating nearby sites of interest, presenting a choice of services close by;11 sensing and presenting input/output information for a group of users;16 and providing remote awareness of others.17

Examples include a system where a user’s desktop environment follows them as they move from workstation to workstation; car navigation systems that recompute driving directions when the user misses a turn; and a camera that captures an image when the user is startled as sensed by biometric sensors.

For example, a zoology application may tag notes taken by the user with the location and time of a species observation; and a meeting capture system may provide an interface to access meeting notes based on who was there, when the meeting occurred and where it was located.4

The navigation system may suggest different routes in the morning and evening as the traffic situation is not the same.

If the user has no knowledge that the system makes routing suggestions based on current location and traffic situation, it is likely that he or she will have a hard time understanding what the system does.

**Evaluation Concepts:**

An audio file has been uploaded on "Download" section of LMS. Please access via your id. Name of file is “Assignment NO 1 audio file spring 2017". It will certainly help you to understand and perform well in assignment #1.