

M-Services: A New Horizon for Human Life

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ABSTRACT

From last two decade mobile users are growing exponentially all over the world. Now mobile phones are not only a medium of voice communication but also popular for Mobile services (M-Services) such as agriculture, financial, health, education etc. In this paper, we have discussed some of the valuable M-services.

Keywords: M-services, M-Health, M-Agriculture, M-banking.

1. INTRODUCTION

The worldwide usage of mobile phones has dramatically increased in last few years. More than three billion mobile phones are currently in operation world-wide and 70% of the total population of developing countries fall within the coverage of existing cellular networks. The basic use of mobile phones is for voice communication. But now scenario has been changed. Now day's cell phones are not limited to voice communication beside that it is widely in use for Mobile-Services (M-services). M-services are the subset of Electronic-Service (E-services) as shown in Figure-1.

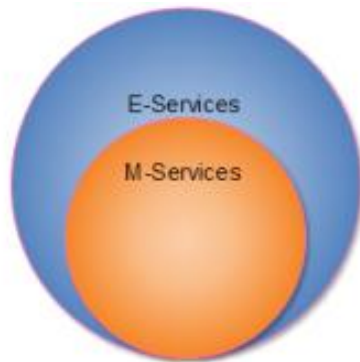
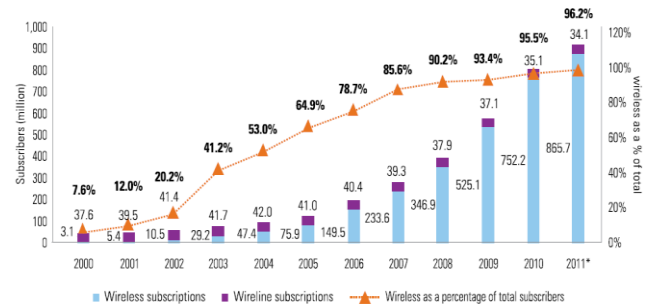


Fig 1: Relationship between E-Services and M-Services

The concept of E-service represents one prominent application of utilizing the use of Information and communication technologies (ICTs) in different areas. E-services are a business concept and developed by Hewlett Packard (HP). For E-services a fixed infrastructure is required. This fixed infrastructure requires an Internet connection and a Personal Computer (PC) or a laptop is required. E-services restrict the movement i.e. it is unable to provide services anywhere at any time. Due to this limitation the concept of M-services becoming popular day by day.

The telecom sector has undergone many changes in the last decade relating to regulation, industry structure, call tariffs, innovative services and other new areas of growth. From data collected from TRAI India's telecommunication network is the third largest in the world on the basis of its number of customers and it has one of the lowest tariffs in the world enabled by the hyper-competition in its market. In the India,

network operators have invested a lot in the mobile infrastructure. These investments have been primarily focused on the physical hardware components such as base stations, mobile switching centres, antennas, routers, fiberglass cables, etc. Moreover, huge investments have also been made in buying frequency slots that enable the delivery of next generation mobile services. M-service is the process of utilising a handheld device (with or without other artefacts and/or actors), in order to help a user achieve a certain goal. India is one of the fastest growing countries in terms of mobile user. This growth percentage growth of mobile users with respect to wire-lines user is as shown in Figure-2.



Source: Economic Intelligence Unit, TRAI * Till August 2011

Fig 2: Growth of wireless subscribers with respect to wire-line subscriber.

Rest of the paper is organized as follows. Section II deals with various M-services for mobile users. The benefits if M-services are discussed in section III. At last conclusion is made in Section V.

2. APPLICATION AREA OF MOBILE SERVICES

Mobile service can be defined as the service that an end-user with a mobile device receives from the network operator or a 3rd party service provider. M-service can be any type of service that is offered on a mobile phone such as agriculture, financial, health, education, transportation etc. These services are discussed as follows:

A. Mobile Banking (M-Banking)

Now a days Internet banking allows customers to access anytime to their bank accounts. Customers could check out their account details, get their bank statements, perform transactions such as transferring money to other accounts and pay their bills sitting in the comfort of their homes and offices. However the biggest limitation of Internet banking is the requirement of a PC with an Internet connection. To overcome from above problems M-banking [1] is widely in use. It allows balance checks, account transactions, payments, credit applications and other banking transactions through a mobile device such as a mobile phone or Personal Digital Assistant (PDA). The earliest mobile banking services were offered over

SMS, a service known as SMS banking. With the introduction of the first primitive smart phones with WAP support enabling the use of the mobile web in 1999, the first European banks started to offer mobile banking on this platform to their customers. A good mobile banking solution will help banks generate more revenue, increase customer satisfaction, extend market reach and reduce costs. Banks need a secure, rich and flexible mobile banking solution that eliminates any barriers to delivering optimized user-centric banking services and encourages high customer adoption. Mobile Banking is enabled in the mobile phone through a secure applet located in the enduser's SIM card. Secure transfers over the wireless network and financial transaction processing are managed by the SIM card and a distributed platform, deployed at the mobile operator's site and at the financial institution. The M-banking services provided by ICICI bank are shown in Figure 3.



Fig. 3: M-Services provided by ICICI bank

B. Mobile-Education (M-Education)

Education is a basic requirement for citizens of any country, as it is seen as the foundation of a society having economic wealth, social prosperity, and political stability. M-Education [2] is a new conceptual paradigm in the use of mobile and wireless technologies for education. It encourages distributed wireless devices and desktop computers to create opportunities for discovery and education in the field and community. In M-education training and learning [3], [4] related content for organizations, educational institutions, etc. pushed to users through mobile applications over SMS, WAP, USSD, etc.

Thus, this technology would provide content to students directly on their mobile. Students would have access to text (e.g. .pdf files, .doc files), picture (.jpeg, bmp, mpg, etc.) and voice messaging. This would eliminate the need to be physically present in a school or in a college. In India, Tata Indicom presents India's first M-Education service. Figure 4 shows the architecture of M-education.

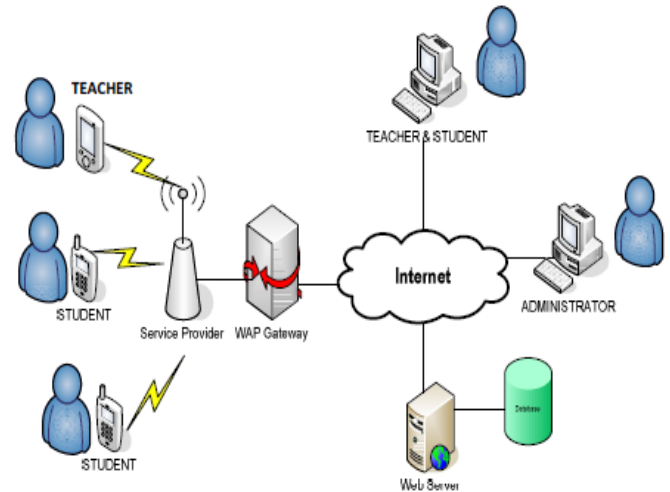


Fig. 4: M-Education architecture

C. Mobile-Agriculture (M-Agriculture)

Although it is emerging concept and is in its early stage of development but still it is showing signs of agricultural productivity improvements. With the help of it farmers easily access to information about agriculture forecasts [5]. It refers to agricultural services, technology dissemination, and aid in decision making and potentially implements the decision. It uses mobile devices such as mobile phones, laptops, netbooks, PDAs and other wireless enabled devices for communication. The M-agriculture reduces communication gaps between farmers, government agriculture institutes, market places etc. In India, IFFCO Kisan Sanchar Limited (IKSL) provides low cost mobile handsets, along with Airtel's mobile service. There is an Experts Farmers Helpline that provides information to farmers on weather forecast, real time mandi prices, farming tips etc. This information helps the farmers in taking their farming decisions resulting in crop yield. The availability of mandi prices and other information such as demand for produce reduces farmers' dependency on middlemen. M-agriculture [6] enables and empowers farmers with the latest information, thereby eliminating the role of the middleman who would earlier take away large amount of the margin. The use of M-agriculture by IFFCO IKSL is shown in Figure 5.

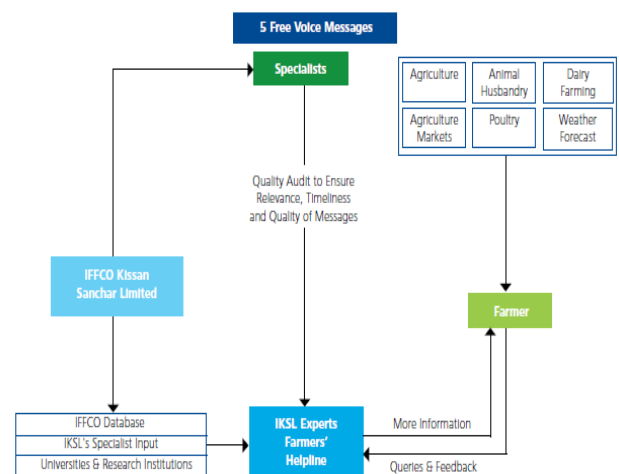


Fig. 5: M-agriculture used by IFFCO IKSL

The example of M-agriculture services provided by IFFCO IKSL on Airtel mobile phone is depicted in Figure 6.



Fig.6: M-agriculture services provided by IFFCO IKSL

D. Mobile Health (M-Health)

The rapid growth of mobile technology along with information and communications technologies (ICT) brings a radical change in the health care services. The public health systems has created a range of new range opportunities to deliver new forms of interactive health services to patients, clinicians, and caregivers alike. M-health [7] changes the traditional delivery of healthcare, allowing for continuous, pervasive healthcare anytime, anywhere [8]. It uses mobile technologies such as mobile phones and Personal Digital Assistants (PDAs) for data display and transfer. Mobile applications can lower costs and improve the quality of healthcare as well as shift behaviour to strengthen prevention, all of which can improve health outcomes over the long term.

The objective of M-health application is to transfer the expertise of the caregiver from one location to another. One of the most widely used applications of M-health is teleradiology (use of “image acquisition, storage, display, processing and transport”) from one geographical location to another location for diagnosis. In the M-Health intelligent wireless sensors nodes are attached on cloths or implanted to the human body to form body area network (BAN). These sensor nodes continuous monitor the signals (such as EEG, ECG, Galvanic Skin Response (GSR), etc.) in real time fashion and provides real-time feedback to the user or medical personnel as represented in Figure...As soon as signals reach to the technical server or to medical personal/ medical server end. These signals are analysed. If there are some irregular pattern in signal found then corresponding to that action may take place. Figure 7 shows the architecture of M-health.

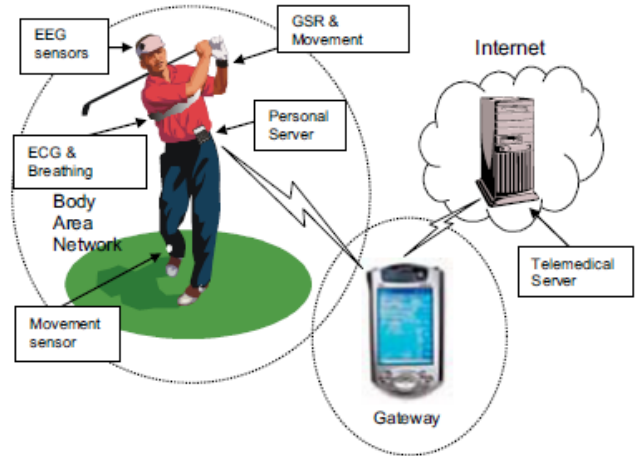


Fig.7: M-health architecture

The example of M-health (e.g. exercises) care services on mobile phone is depicted in Figure 8.

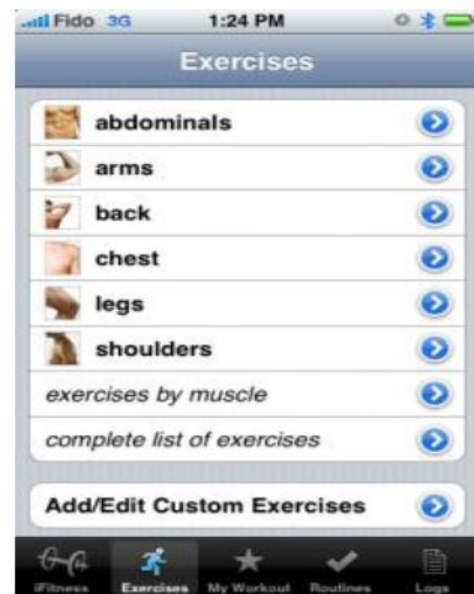


Fig.8: M-health services on mobile phone

3. CONCLUSION

Now a days next generation network services are involving in human day to day life. The services involved in mobile devices are known as M-Services. In this paper we have discussed some of the important M-services such as in finance sector, education industry, healthcare system and agriculture industry. Although these services impacted human life greatly but still suffers from some drawbacks such as frequent disconnection problems although integrity of data always maintains, weak connectivity, depends on mobile capabilities such as size of screen, battery power etc. Removal of these problems may improve quality of M-services.

4. REFERENCES

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