Good example of mobile health thesis

Business, Management

Mobile technology has changed the ways in which people with each other. The latest innovations in the field of mobile technology have brought tremendous changes to the health care industry. With the invention and implementation of mobile health technology in various aspects of health care, the world has been progressing to see a bright future in the field of health care industry. Mobile health is a division of electronic health practice. Mobile health is defined as the medical practice that is supported by the use of mobile technology, which includes mobile phones, wireless devices, patent monitoring devices and many others .

The voice and short messaging service, in other words, SMS is the most common media that carried out mobile health practices. Complex functions such as GPS (Global Position System), internet services such as 3G & 4G (third and fourth Generation mobile telecommunications), GPRS (General Packet Radio Service), Bluetooth technology and many others . Mobile phones provide an effective and convenient communication channel in order to promote the mobilization of communities. Mobile applications have made things less complicated by enhancing the consumer engagement in the health care industry.

The low cost of mobile devices has made a significant contribution in better decision-making, strict adherence to treatments, fewer personal visits to the doctor and good service experience . Mobile health is a medium between technology and healthcare that has made it faster and easier to revolutionize the healthcare industry. Mobile health helps to conduct voluntary programs, immunization campaigns and counseling sessions for people in remote areas. The use of text messaging is a low cost and broader approach for

health campaigns and health promotion. Health care telephone services, mobile telemedicine, emergency toll-free services have proven to yield high outputs .

Health care telephone services employ trained health professionals who deliver advice over the phone to manage emergency situations. The use of mobile health services is high in the developed countries when compared to the developing countries. The reason is because the developed countries can afford to spend more amounts on the mobile health technology when compared to the developing countries . Moreover, the people living in the developed countries are much more advanced in terms of technology, when compared to the developing countries.

Mobile health technology plays an important role in improving the maternal health of women in the low income areas by communicating with them frequently and keeping them aware about the best practices that can be followed, such as diet, schedule of checkup, vaccination for children and many others . It has increased the percentage of safe childbirths and reduced the ratio of misconceptions in the society. Mobile health has also made it possible to measure the compliance standards of the treatment given to the patients. Mobile health operates in an error free environment and it can be considered as one of the great strengths of this technology . Mobile telemedicine is a mode of communication between the health care specialists and the patients by using voice, messaging service, or video functions available in a mobile device. Managing and maintaining the health of patients living at home, who are suffering from chronic diseases has become easy with the help of the introduction of mobile telemedicine .

Mobile technologies provide an opportunity to overcome the challenges in areas where there are limited or no doctors available at all. Mobile health is also helpful in managing emergency situations, such as natural disasters . Mobile health provides access to relevant information that helps to detect the disease of the patients at an early stage. Reminders and personalized information of the patients improve the efficacy of the medicine. Since mobile health system is automated and structured, it reduces irrelevant and unnecessary information in the database. Redundancy of the information is also avoided with the help of mobile health technology. Close monitoring of critical abnormalities is possible by mobile health, due to which it has become easy to diagnose the patients in a more appropriate way and avoid admission in the hospitals . Mobile health also has the feature of remote monitoring, which has enabled the patients to get discharged sooner. The following picture is a depiction of the mobile health architecture.

Figure: Mobile Health Architecture

Mobile health technology acts as a promising feature for the pharmaceutical companies. The presence of mobile health has made it easier for the pharmaceutical companies to increase their business in a global perspective. Mobile health benefits the research and development department of the drug manufacturing companies to accelerate and commercialize the process . The pharmaceutical companies will be able to get direct access to the patients, which help them to maintain cordial relationship with the customers. Mobile health also allows the pharmaceutical companies to build new business models and integrate with the existing ones . Thus, pharmaceutical companies have a bright future in the coming years as they

have all the opportunities to capture a large share of profits as a result of mobile health technology.

One of the potential key factors that have contributed to the success of mobile health is the initiative taken up by the government. Full government participation is essential to maintain sustainability of mobile health for a long time . Integrating mobile health into the existing health sector plans implemented by the government gives more success and convenient access to the patients. The partnership between the public and private sector organizations has also led to the success of mobile health .

There are several barriers that restrict the growth of mobile health technology to a wider group of people. Social, economic and financial barriers have stalled the expansion of mobile health on a global perspective. Since mobile health is in its early stage of adoption, it lacks sufficient evidence to prove as the most convenient health practice . Lack of infrastructure, widespread network coverage and availability of mobile devices are also few obstacles that halt the development of mobile health. Security, confidentiality and privacy in mobile health are also major concerns because highly personal information about an individual can be revealed very easily if there are no proper data security measures .

Mobile Diabetes Management System

Diabetes is a chronic condition in which the body is unable to control the glucose levels in the blood. A nutritional diet, regular exercise and physical activity, healthy body weight, stress, illness are major factors that control the blood glucose balance in the body . Diabetes management systems are designed to help the people suffering with diabetes, so that they can better

manage their health condition. The basic idea behind designing a mobile diabetes management system is to aid the patients in a more effective and convenient way by checking the glucose levels regularly and collecting information on the patient's diet, medicine and exercise .

The mobile diabetes management system is cost effective and helps in the betterment of the patients. In the initial development stages of the mobile diabetes management system, short messaging service (SMS) was employed as it was simple and easily understandable by the users . However, the elderly people found it difficult to enter the text messages and the system was not much flexible. The situation called for the need of developing a more sophisticated and advanced diabetes management system, called the mobile diabetes management system.

The mobile diabetes management system has a glucose sensor, which is used to measure the glucose level in the blood; and a machine that is used to count the rate of heart beat. The information thus collected is either manually entered on the mobile phone or sent to an application that runs on the mobile phone . The information that is entered into the phone is sent to a database through a cellular network and stored in the database further reference by the healthcare professionals to send feedback to the patients

The mobile diabetes management system uses continuous glucose monitors that help to monitor the blood glucose levels during the night to avoid low or high glucose levels in the body. The monitors use tiny sensors that are inserted under the skin of the diabetes patient . The sensor transmits data to a pager-like wireless device in 1-4 minutes to analyze data over a period of time and use it for research purposes. But the major disadvantage of the

continuous glucose monitors is that they are very expensive and require intense knowledge on the part of the user to make an appropriate decision regarding the medication .

The mobile diabetes management system integrates sensors, wireless technology, mobile phones to the GPS and map functionalities to facilitate the diabetes patients to find the nearest hospitals in case of emergency situations . The system not only monitors diabetes, but also ensures the medical and food safety of the patient by utilizing the features present in the system to the fullest possible way. In situations where the patient is not able to reach a hospital, the mobile diabetes management system remotely controls and advices the treatment that should be followed in such cases. The picture is a depiction that shows the working of the mobile diabetes management system.

Figure: Mobile Diabetes Management System

When a patient takes the blood glucose test, the system will automatically alert and call the emergency contact if the blood glucose level is dangerously high or low. The mobile diabetes management system reminds the person to take the right medicines at the right time as prescribed by the doctor . If there are any conflicts or allergies due to the medicine, the system immediately suggests the person to consult with the doctor. The system makes a list of all the prohibited items that should not be consumed by the patient, thus ensuring a healthy and nutritional diet.

The mobile diabetes management system assists the patients in carrying out their daily physical exercises while simultaneously recording the rate of the heart beat to advise whether or not to continue the exercise . The system

thus provides the patients with advanced features to monitor diabetes in a better way. The mobile diabetes management system also reduces the amount of time and energy required to physically visit the hospitals and undergo medical checkups and examinations for long hours . The system provides maximum possible access to the patient to control diabetes and maintain a good health. It also helps the patient maintain a record of the visits made to the hospital and schedule a reminder for the next visit.

The mobile diabetes management system allows the doctor to monitor the patient frequently and advise on the dose of insulin depending upon the levels of blood glucose. Though the mobile diabetes management system is a boon to the diabetes patients, it is not utilized up to the mark due to lack of knowledge of the disease as well as the medication . Hence, so far, the system is limited to the literate patients only. However, educating the diabetes patients on the newly emerging technologies will help them to live longer by following a healthy routine and medication as suggested by the system.

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