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Organisation of Islamic Cooperation

ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)

Project Report Title: **Camer-Telemed**

(E-HEALTH BASED ON TELEMEDICINE)

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Certification

This is to certify that this project report titled “**Camer-Telemed**” is a true work of Ismalia Bouba (104307) and Mfouapon M.O (104309) who successfully carried out the work project under the supervision of Mr. Moin Mahmud Tanvee. This project counts as our final year project which put an end to our three year program as Higher Diploma Students.

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This project was a great pleasure and opportunity for us, in the sense that it helps us acquire basics knowledge and skills in the development of interesting websites as a whole and real online patient treatment (“**healing by wire**”) which was even considered as “**futuristic**” and “**experimental**” in the past. We would like to thank IUT (Islamic University of Technology), our beloved faculty Computer Science and Engineering (CSE) for granting us such an opportunity. But our everlasting thanks goes to the most merciful ‘Allah’, by whose grace and blessings has spiritually helped and give us strength to accomplish and complete this duty.

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ABSTRACT

People today are often working or performing necessary errands, but are unable to socialize due to a chaotic schedule or needs that required a great amount of attention and time. Hence, online communities were created to help those people to interact with each other in a new and unique fashion.

Our social network was created to help a particular group of people (Cameroonians) to come closer and share their personal information's and enjoy a lot more of our services. Here are just some features our social network provides: Creation of personal profile information, add members of the site in your friend list, unfriend unwanted member(s), send private messages among friend members, chat with others, share videos and audio files, and a lot more.

In short, Camerfriends social network website is just a right to for those Cameroonians who are far away to get closer; it is equally a handy tool for decision making for Cameroonians business people. As a result we can just say of Camerfriends that it is a mini-Facebook built for Cameroonians.

Chapter1: THE OVERVIEW OF TELEMEDICINE

1.1 Introduction

Take an example of a passenger flying in airplane and he gets medical emergency in the form of sudden Chest pain and there is no doctor available on board. Using some devices the crew record passenger's vital parameters like pulse, blood pressure, Electrocardiogram and sent to cardiologist on the ground in a city. The cardiologist reviews all information on his computer and replies with suggested treatment. The whole process takes in real time and due to timely treatment the life of passenger is saved. Here, the doctor doesn't need to move; examination as well as treatment is done while patient was flying high in the sky!! Above

is not a fairy tale but a reality now a day!! This is Telemedicine Telehealth or ehealth. One can imagine tremendous advantage. Even Surgeries can be performed at remote place; patients can be advised treatment without moving from home!! *Telemedicine is future of healthcare in 21st Century. Using Telemedicine one can reach to unreachable.* And thus quality healthcare can be provided to any part of world by citing at one place.

People living in rural and remote areas struggle to access timely, quality specialty medical care as specialist are more likely to be located in urban areas. Because of innovations in computing and telecommunications technology, many elements of medical practice can be accomplished when the patient and health care provider are geographically separated. This separation could be as small as across town, across a state, or even across the world.

Broadly defined, telemedicine is the transfer of electronic medical data (i.e. high resolution images, sounds, live video and patient records) from one location to another. This transfer of medical data may utilize a variety of telecommunications technology, including, but not limited to: ordinary telephone lines, ISDN, Internet, intranets and satellites. Telemedicine is utilized by health providers in a growing number of medical specialties, including, but not limited to: dermatology, oncology, radiology, surgery, cardiology, psychiatry and home health care. Tele is a Greek word meaning "distance" and Mederi is a Latin word meaning, "to heal".

Time magazine called Telemedicine "healing by wire". Though initially considered "futuristic" and "experimental"; Telemedicine is reality today and has come to stay. In Telemedicine one transfers the expertise, not the patient. Hospitals of the future will drain patients from all over the world without geographical limitations.

Telecare is a related term and refers to the provision, at a distance, of nursing and community support to a patient. Similarly, telehealth refers to public health services delivered at a distance, to people who are not necessarily unwell, but who wish to remain well and independent. In effect, however, despite repeated

discussions about what constitutes telemedicine, telecare and telehealth and what their differences are, all involve the transfer of information about health-related issues between one or more sites, so that the health of individuals and their communities can be advanced. In other words, the information is moved, not the providers or the recipients of health care. Nowadays, the transfer of information is generally facilitated by the use of some kind of telecommunications network. An umbrella term encompassing all health-related activities carried out over a distance by such information and communication technologies is 'health telematics'. With this in mind, telemedicine, as an integral part of health telematics, might be defined as: Rapid access to shared and remote medical expertise by means of telecommunications and information technologies, no matter where the patient or the relevant information is located.

1.2 DEFINITION OF TELEMEDICINE

Telemedicine can be broadly defined as healthcare services delivered through computer and information communication technology to a distance place. Video cameras and medical equipments can also be added to enhance facilities. In simplest terms, Telemedicine can be explained as two doctors or doctor-patient discussing the case on a phone. Practiced telemedicine is more than simple voice communication over telephone lines. In other means telemedicine is the transfer of patient's medical data in electronic format like Patient's demographical information and history, images like X-ray, CT scan and MRI; ECG; video of sonography, endoscopy, angiography and pathology; audio of electronic stethoscope and doppler; for diagnosis, treatment as well as clinical education. WHO (World Health Organization) has recognized telemedicine as a cost effective and practical method to deliver healthcare to all. In this new era of the interconnected world, it is being viewed as the future means of delivering healthcare. The terms e-health & telehealth are at times wrongly interchanged with telemedicine. Telemedicine often refers only to the provision of clinical services while the term telehealth can refer to clinical and non-clinical services such as medical education, administration and research. E-health including patient portals, remote monitoring of vital signs, continuing medical

education, and nursing call centers, are all considered part of telemedicine and telehealth.

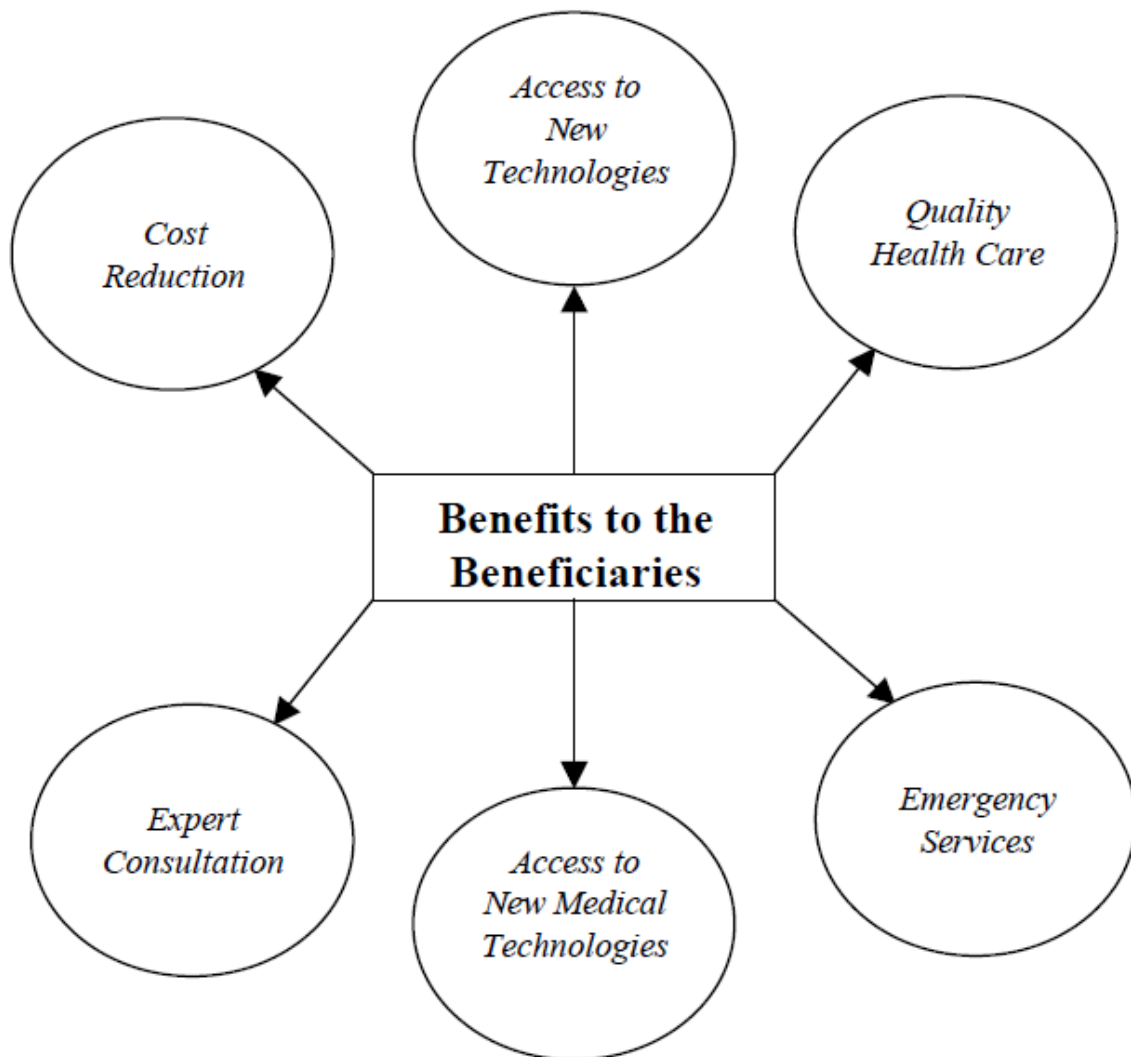
This may further includes electronic medical records, and other components of health IT. ECG; video of sonography, endoscopy, angiography and pathology; audio of electronic stethoscope and doppler; for diagnosis, treatment as well as clinical education. WHO (World Health Organization) has recognized telemedicine as a cost effective and practical method to deliver healthcare to all. In this new era of the interconnected world, it is being viewed as the future means of delivering healthcare.

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1.3 What telemedicine is not

Telemedicine is not a technology or a separate or new branch of medicine, or for that matter even new. It is also not the panacea that will cure all of the world's health-related problems or a means by which healthcare workers can be replaced. It is also not an activity for antiquarians or Luddites, who range from those who are simply not at ease with the use of electronic machinery, right through to those who feel that telemedicine threatens the very fabric of the practice of medicine, and as such should be actively opposed. Equally, however, it is not the sole territory of 'computer nerds' or 'technophiles'. In fact, the tendency of these individuals to concentrate on the technical rather than the practical when discussing

BENEFITS OF TELEMEDICINE



1. Specialty healthcare accessible to under-served rural and urban populations.
2. Easy and quick access to specialists.
3. Cut down cost of travelling and associated costs for patients.
4. Better organized and cost effective healthcare.
5. Continuous education and training for rural healthcare professionals.
6. Very useful in follow up cases.
7. Adds thousands of skilled specialists to the healthcare team, immediately.

8. Help eliminate distance barriers and improve access to quality health services or information that
9. Otherwise are not available in rural communities.
10. Play an invaluable role in emergency and critical care situations where moving a patient may be
11. Undesirable and/or not feasible.
12. Facilitate patient and rural practitioners' access to specialist health services and support.
13. Provide the public with ways to access health information and advice from health professionals
14. In their homes, schools, community centres or libraries, thereby enabling the public to be more
15. Active in the management of their own health.
16. Lessen the inconvenience and/or cost of patient transfers.
17. Reduce unnecessary travel time for health professionals and improve the ability to recruit and
18. Retain health professionals.
19. Reduce rural practice isolation by enhancing physician, nurse and allied health professional
20. Access to colleagues, specialists and education.

TYPES OF TELEMEDICINE

1. Store and Forward Telemedicine:

The method by which patient's medical data are acquired and stored locally and later forwarded to expert doctors at other centers. The remote centre receives the expert doctor's opinion within 48 hours or more. This is typically used for nonemergency situations. Also, in this case, the doctor's presence may not be required at the time of data transfer.

2. Real time Telemedicine:

The method by which patient's medical data is transmitted as it is being acquired. One example is video conferencing with attachment of medical equipments like sonography machine, endoscope etc. The video and medical data transfer is done in real time and an expert opinion can be sought instantly.

3. Hybrid Telemedicine:

Hybrid Telemedicine covers features of Store and Forward as well as Real Time Telemedicine.

Chapter 2: THE EVOLUTION OF TELEMEDICINE

HISTORY OF TELEMEDICINE

While the explosion of interest in telemedicine over the past four or five years makes it appear that it's a relatively new use of telecommunications technology, the truth is that telemedicine has been in use in some form or other for over many years. In fact the first telephone call can be argued as a telemedicine call. "Watson, come here I want you" said Alexander Graham Bell on March 20, 1876, when he inadvertently spilled battery acid on himself, while making the world's first telephone call. Little did Bell realize that this was indeed the world's first telemedicine consultation!!

The National Aeronautics and Space Administration (NASA) played an important part in the early development of telemedicine. NASA's efforts in telemedicine began in the early 1960s when humans began flying in space. Physiological parameters like pulse and blood pressure were transferred using telemedicine from both the spacecraft and the space suits during missions. These early efforts and the enhancement in communications satellites fostered the development of telemedicine and many of the medical devices in the delivery of health care today. NASA provided much of the technology and funding for early telemedicine demonstrations.

In India, Telemedicine was used during Kumbh mela & during earthquake in Gujarat in year of 2001. Telemedicine services are utilized during tsunami in coastal areas in South India. And many more such pioneering efforts have been done in India and across globe. "I think it is a very wonderful contribution to the healthcare of the people who live in rural villages and I hope that people all over the world will follow your lead, because if they do then the benefits of high-tech medicine can go to everyone and not just people who live in big cities" Quote by Mr. Bill Clinton, former president of United States during his visit to Telemedicine center at South India.

Generation 1 (Pre 1970)

During this phase, in the 1920s primarily audio and cable based television technologies were used for consultation. This was followed by ship-to-shore radio transmission of medical information. The transmission of ECG began as early as in the 1930s and as early as 1960s interactive TV was used for educating medical students. The first professional telemedicine network came up

in 1967 when a telemedicine link was established between Boston Airport at Logan and the Massachusetts General Hospital.

Generation 2

Telemedicine initiatives were accelerated in the West particularly in the US and Canada. There were large government sponsored projects for telemedicine using satellite and microwave communications. As early as 1978, around 30 veteran administration and 8 nonveteran hospitals were linked via satellites.

Generation 3

By the 1980s, technology such as T1, ISDN and ATM were well developed. These were used as backbones for comparatively faster transmission of data for video-conferencing, X-Ray scanner output, and camera outputs for documents. These served in helping reach hospitals in the interior regions as well. This was the time when IP was also being developed, providing the impetus for phasing out of ATM technology and thus helping provide greater flexibility.

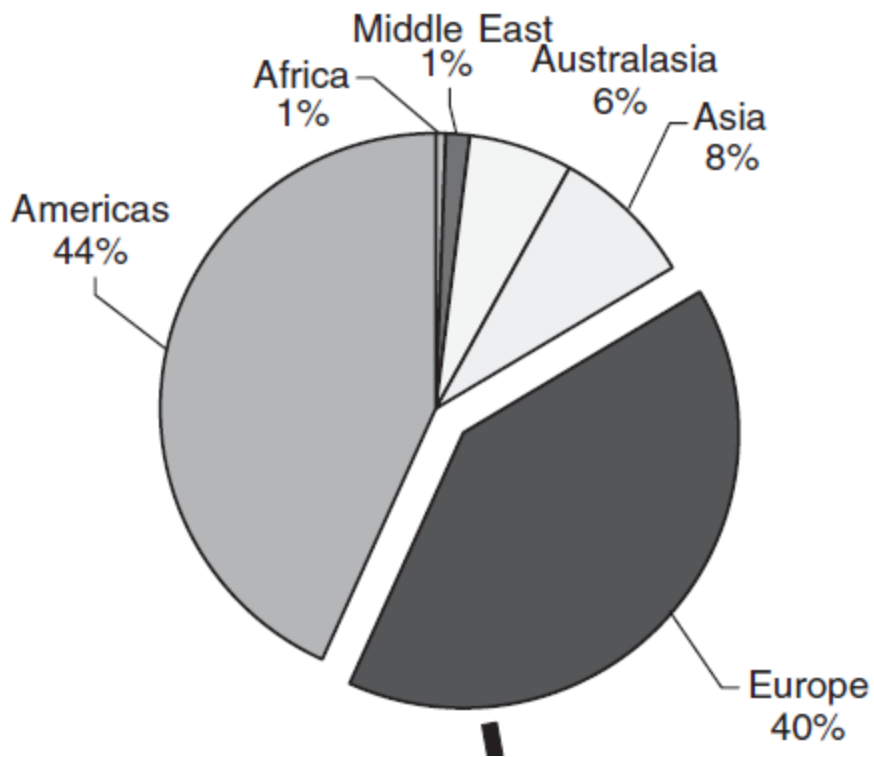
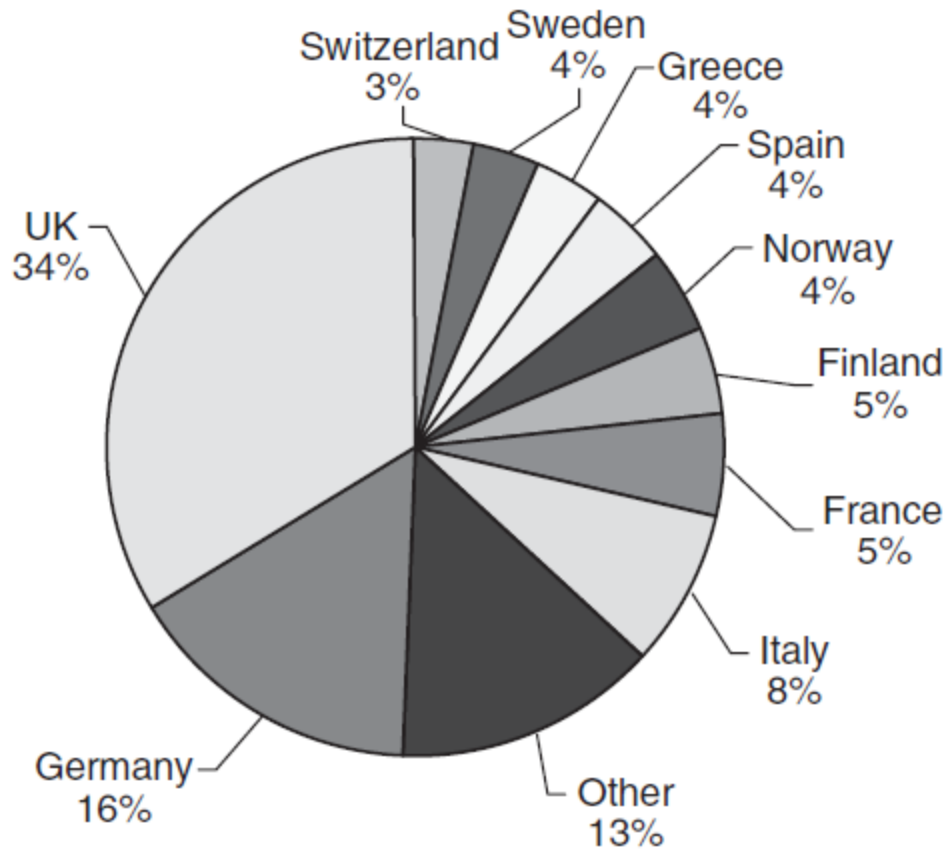
Generation 4

This is the current phase that telemedicine is right now in. The store-and-forward methodology is gaining popularity, where the relevant data of the patient is stored for the specialist in the other hospital to use on a later date for diagnosis. There are standards evolving for the kind of equipment being used as also for the images being used.

Where is telemedicine being done?

Today, telemedicine represents the experiences, opinions, perceptions and interests of a vast number of individuals and organizations.

Most operational telemedicine services, of which the majority concern diagnosis and clinical management at a distance, are in industrialized countries, especially the USA, Canada, Australia and the UK. Telemedicine also includes teleeducation, and distance treatment, e.g. telesurgery. The latter area remains the subject of media interest, but there is little practical experience. Teleradiology is the branch of telemedicine which has been integrated best into the fabric of clinical practice. So well integrated is it that figures on its use are impossible to come by. A recent survey of teleconsultation activity (excluding teleradiology) in the USA found that over 85,000 teleconsultations were done in 2002, performed by more than 200 programmes, in over 30 specialties.¹⁰ Mental health, paediatrics, dermatology, cardiology and orthopaedics accounted for almost 60% of these teleconsultations, with approximately 50% using interactive video, the rest prerecorded or non-video technology (Figure 2). This survey also identified 52 telemedicine programmes outside the USA, with Canada (10), Australia (9) and the UK (9) being the major contributors. Elsewhere in Europe, Norway has a National Centre for Telemedicine based at Tromsø and both Finland and Russia have functioning telemedicine programmes. Hong Kong has established programmes in the rehabilitation of older people,¹¹ and there is a telemedicine service for burns patients in Australia. In South America, Argentina has seen its telemedicine applications collapse.



Why is telemedicine being done?

The frequent references to telemedicine in the medical and lay literature and the increasing number of politicians who appear to be interested in its use are very noticeable. McLaren and Ball have argued that the reason for such interest is that 'Technology has the power to mesmerise. It is for this reason that telemedicine has a high profile'.²² While there is no doubt that for some this is true, there are basically two reasons why telemedicine should be used:

1. There is no alternative to telemedicine;
2. Telemedicine is better than existing conventional services.

Telemedicine is occasionally accused of being an 'industry' driven by commercial rather than consumer interests. Certainly, of the numerous experimental and operational telemedicine systems in use, or at the drawing-board stage, some would appear to have been set up primarily to produce financial benefits for the providers (individuals or organizations) of the service, rather than health benefits for the consumers. Telemedicine principally practised for financial gain is not confined to the manufacturers of equipment, but includes health-care workers (real or fraudulent), telecommunications networks and other organizations. The technological advances that have been necessary to develop telemedicine to its current state, or which are likely to occur in the future, are driven mainly by market forces; hence, there is a concern that the reputation of telemedicine as a whole could be damaged by the actions of those aiming to make their fortune. This is especially likely if operational services are set up without prior establishment of the need for a particular application in a certain setting, and evidence that the service as established is effective and cost-effective.

No alternative to telemedicine

Telemedicine clearly has a role in the case of emergencies in remote environments such as the Antarctic and in ships or aeroplanes, where it may be difficult, if not impossible, to get medical care to the patient in time. In countries with unstable or weak economies, however, where health-care services are often not a priority, telemedicine also permits access to services that would not otherwise be available. An example is the provision of medical services from the city of Arkhangelsk in northwest Russia to other parts of the region and exchange of knowledge and

experience between the University Hospital of Tromsø, in northern Norway, and northwest Russia.

Telemedicine is better

Telemedicine has obvious advantages in remote or rural areas where it improves access to health services, obviating the need for patients and health-care workers to travel. Even in urban areas, however, telemedicine can improve access to health services and to information. Telemedicine has also been shown to improve the consistency and quality of health care.²⁴ It may sometimes also be cheaper than conventional practice, although, as previously mentioned, scientifically sound economic appraisals of telemedicine applications are only just beginning to appear.

Chapter 3: FUNCTIONALITIES OF TELEMEDICINE

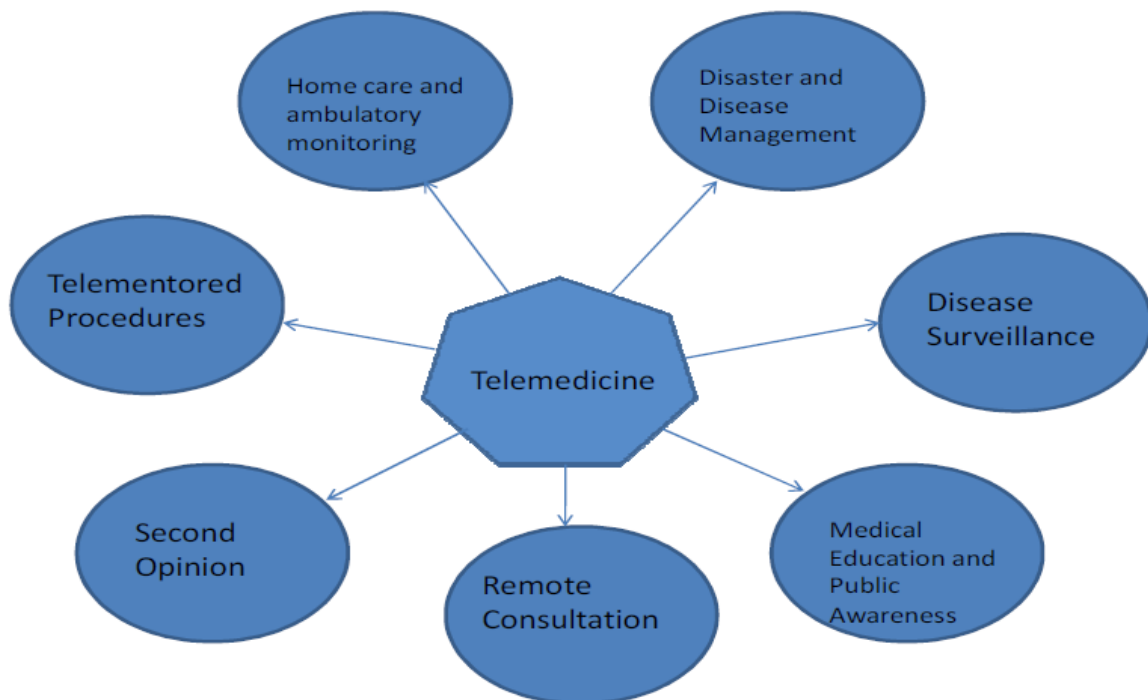


Figure 3: Functionalities/Applications of Telemedicine

3.1 DISEASE SURVEILLANCE

This methodology is taken by the government and medical committees at times of epidemics when specialists get a chance to predict, observe, and minimize the ill effects of the epidemic. Direct case reports are generated using the telemedicine applications.

3.2 DISASTER AND DISEASE MANAGEMENT

The telemedicine facilities come extremely in use in case of natural disasters such as earthquakes, floods, and so on where medical facilities can not be quickly

setup. In such cases telemedicine facilities will help specialists and not require them to reach the disaster stroke for diagnosis. The also reduces the cost of transportation of medical facilities and doctors

3.3 REMOTE CONSULTATION

Consultation is provided in remote areas where full blown facilities have not been setup. This is extremely critical for rural areas where medical institutions do not believe its is profitable to setup units which provide all medical facilities. Only consultation is made and recommendation for specialist is made.

3.4 SECOND OPINION

Telemedicine applications come to use here when the patients are already diagnosed with a particular disease and the doctor wants to confirm the same by seeking opinion from other specialists in another region. The patient can take a second opinion from a specialist. This is when the patient is unsure of the diagnosis done by the primary doctor.

3.5 TELEMENTORED PROCEDURES

This telemedicine facility is used in case where the specialist is unable to perform medical procedures due to his/her ability to be in the concerned location. The specialist can guide or sub-ordinate doctors in performing the procedure as well as in diagnosis.

3.6 HOME CARE

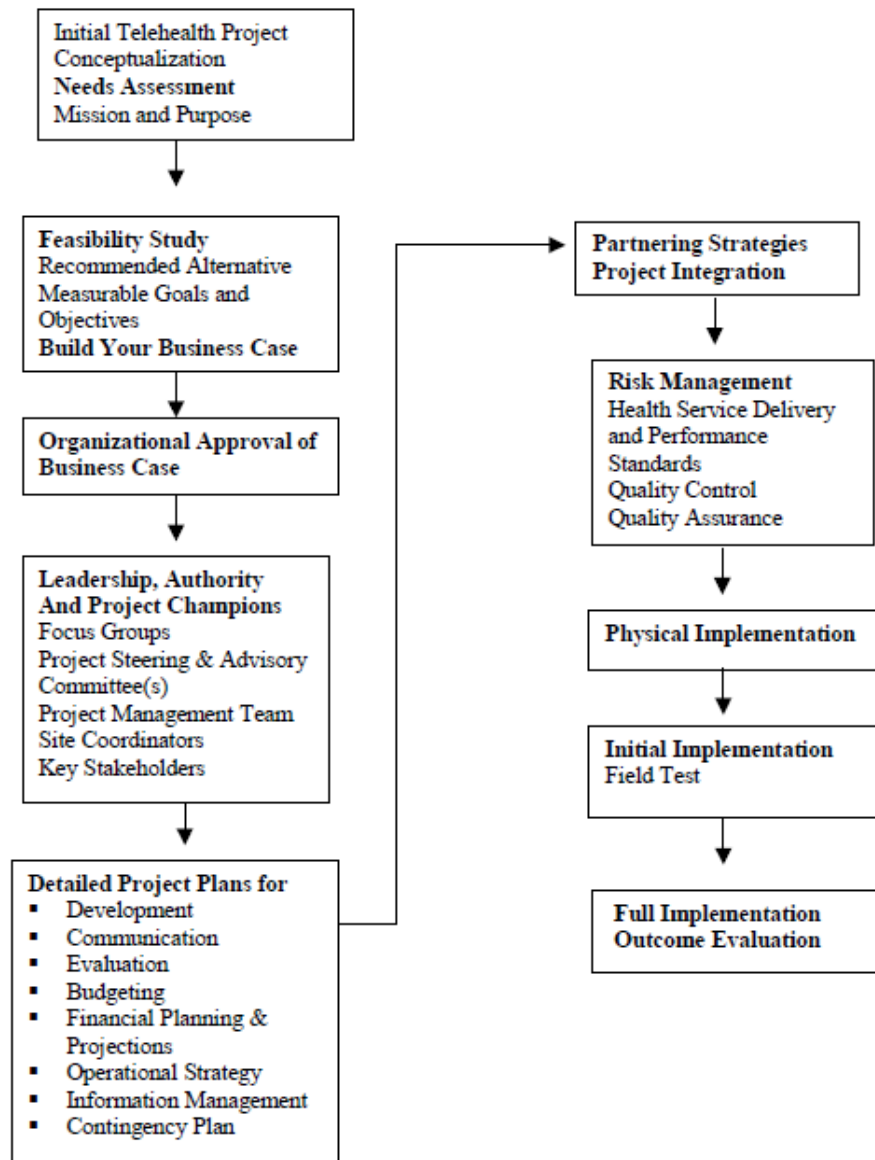
This facility is used by patients when they login from home to the telemedicine unit. They can get feedback and also diagnosed.

3.7 MEDICAL EDUCATION AND PUBLIC AWARENESS

Telemedicine applications can be used to spread general awareness to the public especially in times epidemic without the need of the specialist doctor to be present in the concerned location. This facility helps a lot in reaching out to large masses and early information dispersal.

Chapter4:OUR PROPOSED SYSTEM INFRASTRUCTURE

Project Flow From The First to The Last Step



4.1 Determining the Architecture

Before we start coding, let's examine the ways in which we can architect the project. We need to outline the responsibilities among functional components, and determine how they will interact with each other.

When we work with PHP technologies, we can code all of our business logic in PHP pages using scriptlets. Scriptlets are snippets of PHP code enclosed in `<? Php ?>` tags. However, there are several reasons why this practice should be avoided, especially when working in large projects.

These are some reasons why we should not do so:

- **Scriptlet code is not reusable:** Scriptlet code appears in exactly one place: The PHP code that defines it. If the same logic is needed elsewhere it must be included (decreasing readability) or copied and pasted into the new context.
- **Scriptlets mix logic with presentation:** Scriptlets are islands of program in a sea of presentation code. Changing either requires some understanding of what the other is doing to avoid breaking the relationship between the two. Scriptlets can easily confuse the intent of a PHP page by expressing the program logic within the presentation.
- **Scriptlets break developer role separation:** Because scriptlets mingle programming and Web content, Web pages designers need to know how to program or which parts of their pages to avoid modifying
- **Scriptlets make PHP pages difficult to read to maintain:** PHP pages with scriptlets mix structured tags with PHP pages delimiters, and perhaps JavaScript, or HTML code.
- **Scriptlet code is difficult to test:** Unit testing of scriptlet code is virtually impossible. Because scriptlets are embedded in PHP pages, the only way to execute them is to execute the page and test the results.

There are various design patterns already in existence which provide considerable benefits when applied. One such pattern is the Model View

Controller (MVC) paradigm which divides our application into three interoperable components.

- **Model:** Represents the business data and any business logic that govern access to and modification of data. The model notifies views when it changes and lets the view query the model about its state. It also lets the controller access application functionality encapsulated by the model.
- **View:** The view renders the contents of a model. It gets data from the model and specifies how that data should be presented. It updates data presentation when the model changes. A view also forwards user input to a controller.
- **Controller:** The controller defines application behavior. It dispatches user requests and selects views for presentation. It interprets user inputs and maps them into actions to be performed by the model. In a web application, user inputs are HTTP GET and POST requests. A controller selects the next view to display based on the user interactions and the outcome of the model operations.

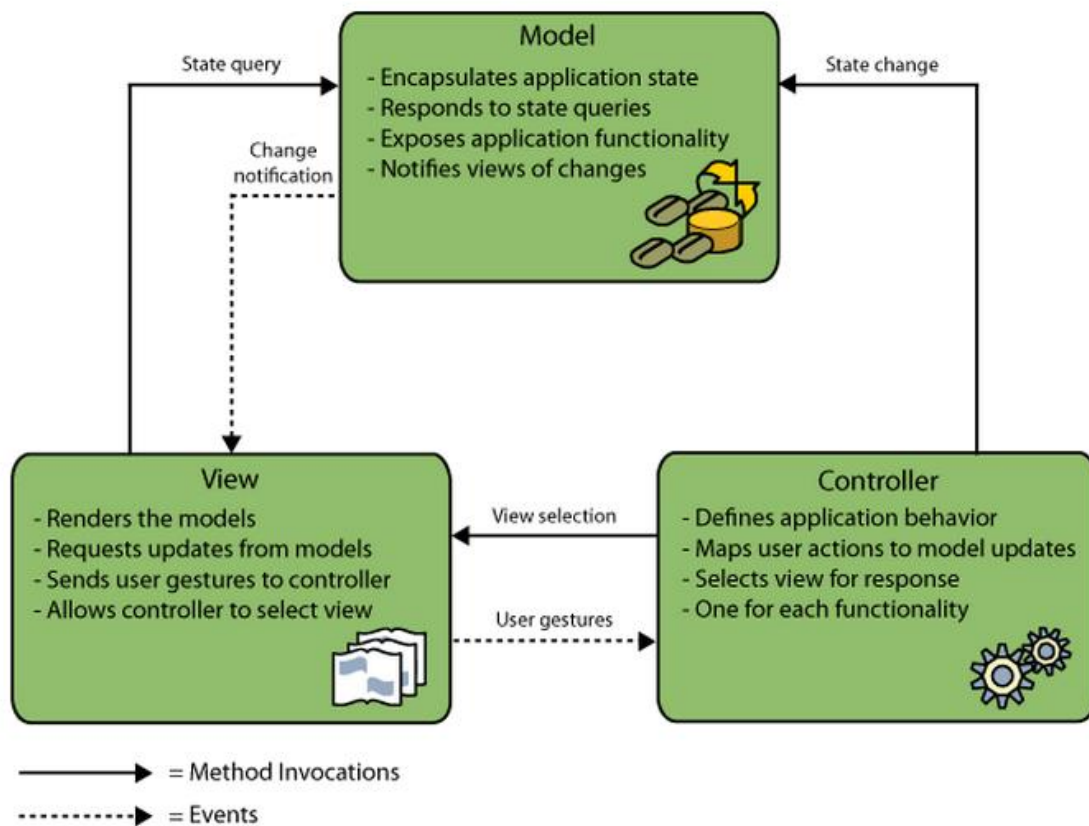
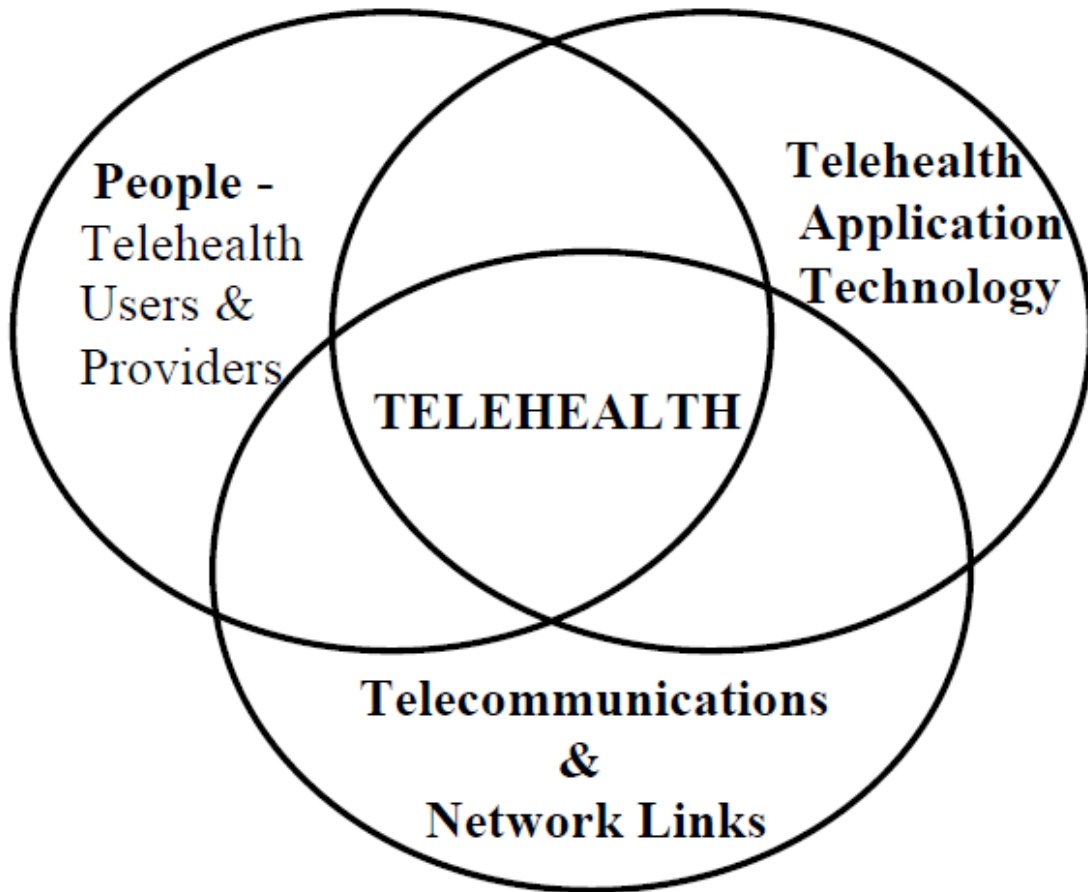


Figure 4.1

Adhering to the MVC design pattern provides you with numerous benefits:

- **Separation of design concerns:** Because of the decoupling of presentation, control, and data persistence and behavior, the application becomes more flexible; modifications to one component have minimal impact on other components. You can, for example, create new views without needing to rewrite the model.
- **More easily maintainable and extensible:** Good structure can reduce code complexity. As such, code duplication is minimized.
- **Promotes division of labor:** Developers with different skill sets are able to focus on their core skills and collaborate through clearly defined interfaces.

Below is The View on How Our System Fits into The Model



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4.2 Motivation of Our System

We feel that a stationary system that is not computerized such a hospital in the city will only give services to patients when they are in physical contact in the hospital. Our motivation is to eliminate these problems and make health services accessible to people where they can be and whenever. Health problems for this kind of stationary system include the following.

1. It is not easy to be developed and less flexible, particularly in areas where the communication and transportation infrastructure has not been available yet.
2. Deployment of the system could be very problematic especially in case of emergency cases/natural disaster such as tsunami, earthquake, and flooding.
3. Population in a country is spread out all over. Because of the demography condition a mobile and/or movable system will be demanding because a fixed system is difficult to be reached by patient living in remote urban or rural area, so he or she can not be given proper health services.

In order to alleviate these problems and support different growing application of telemedicine, this project proposes the Development a Telemedicine System with Multi Communication Link. One of the crucial problem to deliver health services is the specific demography, and the unavailability of needed infrastructure. The proposed system will exploit the advantage of wireless technology and combine it with other communication technologies such as wide band radio packet to satisfy different locals and demographic requirements. In an online system many patients can interact with specialized doctors.

Project objectives:

1. Develop an ICT-based mobile telemedicine system that can be functioned as an emergency health care unit for urban and rural area. The system consists of 2 (two) major parts. Firstly is a Telemedicine unit that may be portable (easily movable) and located at the patient's site; and secondly is a base unit or doctor's unit located in a medical monitoring centre/referral hospital. Communication between the two units can be established using

wireless digital cellular, radio packet or ordinary fixed telephone lines.

2. Improve and enhance the health care services to people in urban and rural area, especially for medical consultations and medical care for patients who live far from city areas.
3. Establish a pilot project of application wireless local area network in pre hospital environment for capturing data by using PDA, laptops, and cellular phones. The captured data will then be transmitted to a physician or nearest hospital.
4. Improve management of medical resources particularly in rural and underserved areas by using these technologies, so patients who are in a remote location may still have access to medical expert opinion.

Project Sustainability

ICT-Based Mobile Telemedicine System with Multi Communication Links is obviously one of the best solutions to overcome various national health problems, since the system offers flexibility for development that suit to a condition of local needs. In addition, by applying the system, it is possible to build an integrated system disease management in order to provide a quality health care at affordable costs. With so many advantages of the system, it will be a reasonable choice for the government to put the sustainability of project as a priority of its national health care development agenda. This can serve as aid given by the government to the citizens of a national This will also support privates / community to do researches in this area.

Project methodology :

The scope of this project is to develop and implement an integrated telemedicine system that can manage different telemedicine requirements, Integrated telemedicine system means the system is able to serve different requirement of telemedicine, for instances information dissemination and health education, patient data acquisition, emergency health care condition in any inaccessible located health centre, or rural hospital, and home telecare for patients suffering from chronic and/or enduring diseases.

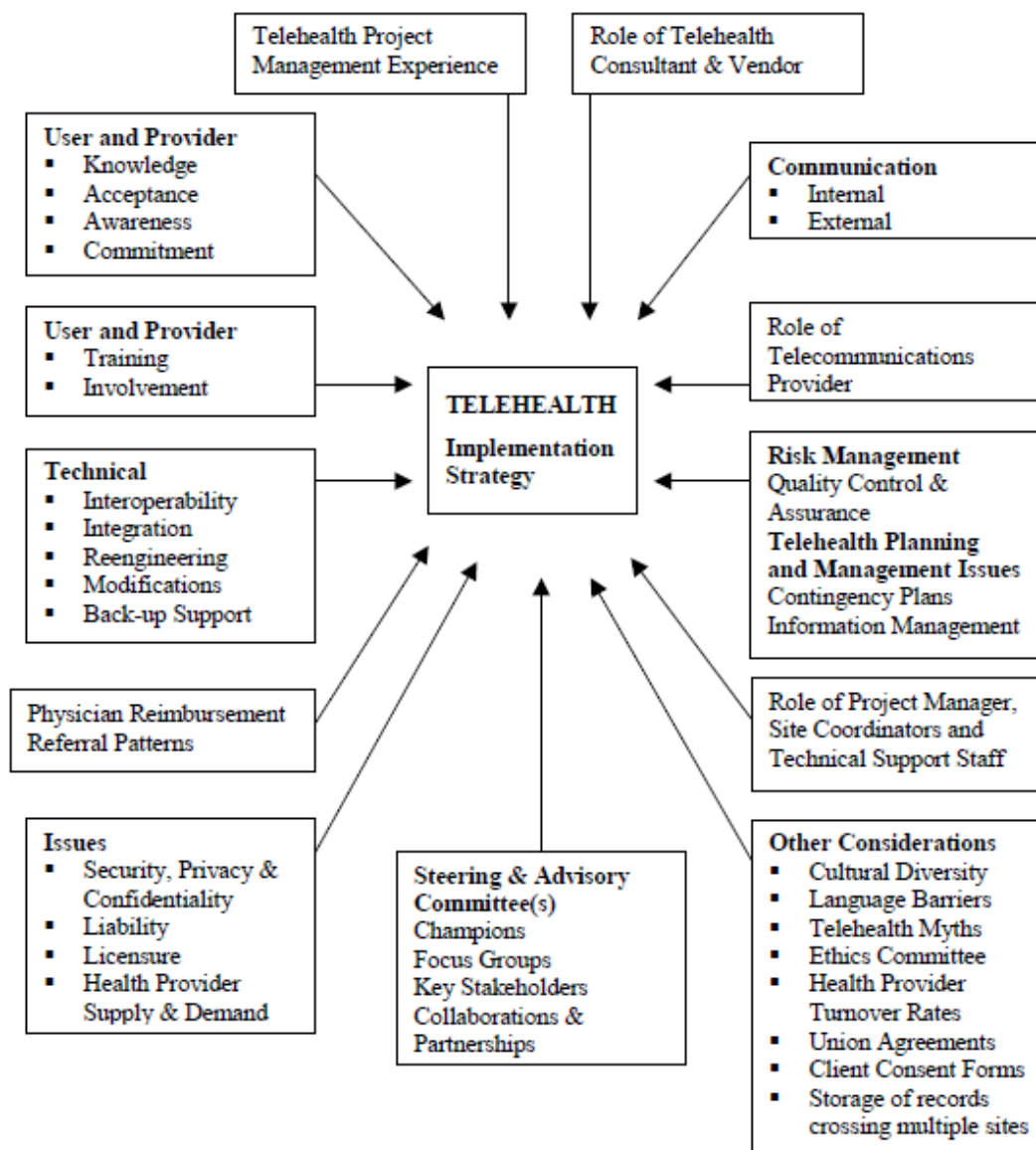
The system can be operated in both on-line mode and the indirect mode (data is stored and forwarded later on). The data can be transmitted in different mode of communication links, and the system will be 'bandwidth independent'. As a result, the system should be able to be employed effectively even if only the lowest bandwidth is available in the local area. To achieve this objective, the system will be provided with

options of variety communication links from ordinary telephone lines, mobile telephone both GSM and CDMA, and packet radio. Depending on the geographic location, a user can determine the mode of communication that suits his or her requirement.

The following methodologies will be carried out to implement the project :

1. Assessing the available communication means within the area of interest.
2. Doing a comparative study to learn how to implement this system.
3. Developing the hardware and software communication interface module to perform voice, data transaction and video for telemedicine purposes
4. Developing the hardware and software platform for telemedicine including the telemedicine data base.
5. Integration of the developed modules into the telemedicine system.
6. Identify the information and service needed by the doctor side including the medical data base.
7. Development of the required hardware and software platform for the doctor site.
8. Field test of the telemedicine system, analysis, and reporting.
9. The most important aspect to be considered is the real application of the system which will define feasibility of technical constraints.

Telemedicine Planning and Management



4.3 A Full Description On How Our System Work





When you visit CAMER-TELMED, The site provides the following:

1. First, On the home page you will find information about our site such as
2. Catalogue: This shows the different products (medicines) we sell.
3. How To Order: This shows the steps you have to follow during your consultation
4. Treatment: This gives a list of the diseases we treat.
5. Site Policy: The usage of our site, legacy and rules.
6. Contact Us: The different multi-communication method by which you can get to us.
7. About Us: The will tell you how we operate and our site general information.
8. Before you have full access to our services you must register.
9. Registration takes security into account and only valid information can be submitted.
10. A registered user can sign in and start consultation.
11. The first step of consultation is providing your medical history, uploading any reports, the medical history takes into account of your personal health and that of your close relatives. This enables the doctor to know whether the disease is inherited or not.
12. Then followed by providing information about your pharmacy. Whether you took some first aid drugs before your consultation. This is also for security.
13. From there you will start your current consultation by selecting symptoms and submitting them to a doctor.
14. The doctor receives the symptoms and with the help of the analysis by the system, and his own confirmation he/ she will send a message to respective patient giving the patient an appointment for a chat using any of the multi-communication links, if its crucial or simply replying to the patient informing them about the disease they are suffering from.
15. The patient will receive a message which tells him/her the disease.

- 16.The patient can then search the disease.
- 17.The patient can decide to go for the drug and can also see the possible causes, symptoms and treatment.
- 18.Only drugs related to this disease will be made available for purchase.
- 19.The patient then adds the drugs to his/ her cart and the money is deducted.
- 20.It should be noted that the patient has a profile and can see his/ her previous activities and can do any changes on previous personal information.
- 21.From there the patient can browse over the site taking advantage to utilize all the services.
- 22.If necessary the patient then logs out.


4.8 Project Features Seen At A Glance

Medical History1:


Medical History_1		
<input checked="" type="checkbox"/> Recent weight gain	<input checked="" type="checkbox"/> Recent weight loss	 Entertainment Your first step was to get here. Now, it is time to learn how to maximize your fun while here
<input checked="" type="checkbox"/> Polio	<input type="checkbox"/> Rheumatic fever	
<input type="checkbox"/> Cancer	<input type="checkbox"/> None of the above	 Gallery Your first step was to get here. Now, it is time to learn how to maximize your fun while here
<input type="checkbox"/> Memory loss	<input type="checkbox"/> Migraine	
<input checked="" type="checkbox"/> Difficulty speaking	<input type="checkbox"/> Headache	
<input type="checkbox"/> Epilepsy	<input checked="" type="checkbox"/> Weakness	
<input type="checkbox"/> Loss of sleep	<input checked="" type="checkbox"/> None of the above	 Our Rooms Check out some more information, photos and amenities in our accommodations
<input type="checkbox"/> Hypothyroidism	<input checked="" type="checkbox"/> Hypert thyroidism	
<input checked="" type="checkbox"/> Diabete	<input type="checkbox"/> None of the above	
<input checked="" type="checkbox"/> Vision problem	<input type="checkbox"/> Hearing loss	
<input type="checkbox"/> Ear pain	<input type="checkbox"/> Nose bleeds	 Activities Mini-Golf anyone? How about a sweet early dinner while checking out the sunset sound-side?

Medical History2:


Medical History_2	
<input type="checkbox"/> Coughing	<input type="checkbox"/> Asthma
<input type="checkbox"/> Chest pain	<input type="checkbox"/> Lung cancer
<input type="checkbox"/> Tuberculosis	<input type="checkbox"/> None of the above
<input type="checkbox"/> Vomiting	<input type="checkbox"/> Pain over the stomach
<input type="checkbox"/> Constipation	<input type="checkbox"/> Diarrhea
<input type="checkbox"/> Hepatitis	<input type="checkbox"/> None of the above
<input type="checkbox"/> Catch cold easily	<input type="checkbox"/> HIV
<input type="checkbox"/> AIDS	<input type="checkbox"/> Frequent influenza
<input type="checkbox"/> Fever	<input type="checkbox"/> None of the above
<input type="checkbox"/> Muscle pain	<input type="checkbox"/> Gout
<input type="checkbox"/> Joint pain	<input type="checkbox"/> Muscular Dystrophy
<input type="checkbox"/> Lupus	<input type="checkbox"/> None of the above
Other medical history here if any...	<div style="text-align: center;"> <input type="button" value="Upload Lab Test"/> </div>




Entertainment
Your first step was to get here. Now, it is time to learn how to maximize your fun while here



Gallery
Your first step was to get here. Now, it is time to learn how to maximize your fun while here






Our Rooms
Check out some more information, photos and amenities in our accommodations



Activities
Mini-Golf anyone? How about a sweet early dinner while checking out the sunset sound

Pharmacy Information:

YOUR PHARMACY INFORMATION In all cases if none just type none		 <p>Entertainment Your first step was to get here. Now, it is time to learn how to maximize your fun while here</p>
CURRENT PHARMACY	ADDRESS	
THE CITY ITS LOCATED	THE STATE	
PHONE NUMBER	FAX NUMBER	
MEDICATIONS THE PHARMACY GAVE YOU In all cases if none just type "none"		 <p>Gallery Your first step was to get here. Now, it is time to learn how to maximize your fun while here</p>
MEDICATION 1: (INCLUDE NAME AND MILLIGRAMS PER DAY:.) nevaquin 50mg	MEDICATION 2: (INCLUDE NAME AND MILLIGRAMS PER DAY:.) penicillin just for rubbing	
MEDICATION 3: (INCLUDE NAME AND MILLIGRAMS PER DAY:.) none	MEDICATION 4: (INCLUDE NAME AND MILLIGRAMS PER DAY:.) none	 <p>Our Rooms Check out some more information, photos and amenities in our accommodations</p>

Drug:

SHOPPING DRUG

BELOW ARE DIFFERENT DRUGS YOU CAN BUY



Children:half a piece every morning 2 hours before breakfast.side effect:hunger, nausea, sneezing.adult:One piece every morning 2 hours before breakfast.side effect:frequent urination,others are same as in children.

PRICE:\$79

ADD TO CARD



Children:half a piece every morning 2 hours before breakfast.side effect:hunger, nausea, sneezing.adult:One piece every morning 2 hours before breakfast.side effect:frequent urination,others are same as in children.

PRICE:\$79


ADD TO CARD

VIEW CART

Disease Profile:

DISEASE PROFILE	
CLICK BELOW FOR MORE INFORMATION ON EACH OPTION	
SYMPTOMS	CAUSES
ismail	
Angina is caused by a lack of blood flow to the coronary arteries. These arteries carry oxygen-rich blood to the heart. The diminished blood flow is caused by plaque that nar	
ismail	
s and stiffens the coronary arteries in the process known as atherosclerosis, sometimes called hardening of the arteries. Angina occurs when the flow of oxygen-rich blood to the heart muscle is reduced, causing chest pain. Plaque buildup also can lead to a heart attack if the plaque ruptures and causes a blood clot to f, A number of factors increase the risk of developing angina. Not all people with risk factors will get angina. Risk factors for angina include: , Age (for men, risk increases after 45 years of age; for women, after 55 years of age) Cigarette smoking Family history of early heart disease High blood pressure (hypertension) Overweight or obesity Unhealthy cholesterol levels , You may be able to lower your risk of angina by: , Getting regular physical activity Keeping your cholesterol at a healthy level Maintaining normal blood pressure Reducing cholesterol and fat in your diet Quitting tobacco use ,,,,,,	

User Profile:



Welcome To Your CAMER-TELEMED Profile

Search: [Card](#) | [Edit Profile](#) | [Medical History](#) | [Photo Gallery](#) | [Skype](#) |

Your Personal Information:

F.Name

L.Name

DOB

Username

Phone

Email

How To Contact Us:

[Notification](#) ⁸

camer@yahoo.com	20:30:00
h_barack@yahoo.fr	18:27:23
h_barack@yahoo.fr	18:31:24
Admin@yahoo.com	00:12:27
Admin@yahoo.com	20:18:04
Admin@yahoo.com	00:23:24
Admin@yahoo.com	15:58:26
Admin@yahoo.com	16:32:15

[Write Message](#)

[Files Uploaded](#)

Medical History

Before my medical consultation,i was presented this kind of symptoms:
 •Recent weight gain•Recent weight loss•Memory loss
 To view all my symptoms [just read here...](#) The pharmacys name i dealt with is:
 After my consultation,i suffer of
 I bought this medecines:

[Chat With Coco](#) [Chat With Barack](#)

hassan - X

4.4 Technologies used for the development

As young and dynamic software developers we thought we would be appropriate to use as much as possible various web technologies to proceed in this work, the reasons behind this, was first to grab knowledge of all kind of web technologies available and second to meet the standard of today way of web development procedure (Web 2.0). For that we used:

4.4.1 Design

1. Adobe Fireworks (This was used to design our logo)
2. Adobe Photoshop (This was mainly used for design picture such background pictures and ads)
3. HTML4 and HTML5 (Hypertext Markup Language) were used to format our forms
4. CSS3 (Cascade Style Sheet) this is a scripting language mostly used for beautifying web pages. For instance CSS3 helps us choose what color, font, background color, padding precision, margin precision to apply on different tags
5. Ajax, Javascript, J query, object oriented php.

4.4.2 Form Validation

To validate our forms we mainly used the following technologies

4.4.3 Client-Side Validation

- JavaScript. This is a scripting language we used to add interactivity in the web browser. For instance when a client provide invalid email

address or password she is prompt for the invalidity of her input and will need to correct to gain access to the system

- JQuery. This is another extension of JavaScript technology with the sole exception that it render web page with the results coming from the server
- Ajax which stands for asynchronous JavaScript help us also for validation and render pretty well results generated from the server side prior on the inputs fired by the user

4.4.4 Server-Side Validation

In the Server-Side part we mainly used the following languages:

- Hypertext Preprocessor (PHP) is one of the most successful programming languages used by web developers nowadays due to its tremendous versatility, and feasibility. It embodies within it concept of Object Oriented Programming paradigm which is very handy to code module stepwise. We use it to generate queries requests to our database to achieve intended goals like updating, inserting, or deleting specific user information.
- Extensible Markup Language (XML) has also been used for a number of reasons. To make quick retrieval of user information we thought it would be logical to store permanent user information in a XML file than storing them in the database. Moreover adopting XML as part of our system benefited us to standardize our own tags which help us to better understand our system. Because we have defined our own tags, instead of relying solely on predefined tags offered by HTML

4.5 Server used

We all know that all social networking sites use a server to service client's requests. They server decides which view fit the request made by the client.

In our project we have used Apache Server to handle every request made by the client. We equally benefit from all the services provided by the server.

4.6 Database Version Used and Table Description

To properly handle all the queries we have used MySQL Database for storing database in our application. Our table consists of six tables basically.

Chapter 5: FUTURE WORK AND PLAN

5.1 Future Plan of Our System

We shall give some data flow diagrams of the various components especially the doctor or reference unit and the patient unit with their various functionalities. We shall also study more on the devices that will be needed to operate this system with their various performance criteria. We hope to provide the Gantt chart or structural view of the timeline.

Summary:

Conclusion:

Despite all the shortcomings of our system, we can see that our system provides a number of features even though one may argue it has some limitations. Our system is secure, scalable and fast it is also important to note that it works in major browsers such as Firefox, Opera, Google Chrome, and others.

Telemedicine represents a series of technologies and procedures significantly different from current healthcare practices. Using technology to break down distance barriers, remotely connecting specialists with patients needing advanced medical treatment, and allowing greater exchange of images and health data are just a few of the advantages of widespread deployment of telemedicine. Some experts think telemedicine's electronic interconnectedness will result in a better "track record" of a patient's medical decisions, reducing liability concerns. A population surge, coupled with an expected shortage of healthcare professionals, over the coming decades accentuates the need for telemedicine. However, the environment for adopting these paradigms has not changed markedly in recent years.

As it evolves, telehealth will improve and most likely change significantly, how health care is delivered in the future. There are two primary questions that face telehealth projects today: firstly,

Whether telehealth is the most appropriate mode of health service delivery; and secondly, where and by whom the investments should be made. The solution lies in the public and private sector's ability to form partnerships based on a common vision and goal. Part of this vision and goal must be to ensure that an affordable telecommunications infrastructure, with interoperable software and hardware, is in place and that the true merits and cost benefits of telehealth are achieved in an appropriate manner. It is hoped that the reader has gained a clearer understanding of telehealth and an awareness of potential project enablers and barriers

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