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M- Governance, A solution for health analysis and prevention measures against diseases in rural India

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Abstract— M-Governance (Mobile-Governance) is a solution come to me by a survey of monitoring the health and disease prevention measures of the mass living in rural India. I'm taking an instance of a senior citizen who doesn't got his telephone bill due to postal mishap and on the verge of terminating his connection of landline, he informed this to BSNL(The facelift of DoT-Department of Telecommunication), and after that to his surprise he got billing information on his registered mobile number. To his ease of not getting his telephone bill on time, the citizen can rely on his gadget. From this instance I'm sure that this (M-governance) tool can be a boon to the rural society of India, which comprises of 70% of population, if apply effectively. This survey emphasizes on using smart devices intelligently, not mere creating intelligent devices for smart people.

Index Terms—

1 INTRODUCTION

It is survey that includes the usage of gadgets intelligently in a rural area where means of communications are very less and thus the facility and service of the government can't get avail to them many times. The medical facilities avail to an urban man is about 75% whereas to its rural counterpart is 25% which is far less in latter's case, as about 70% of the population of India resides in rural area. Then it is also necessary to find a makeshift solution to this thing rather than to spend a hefty sum from the budget. m-Governance has not replaced e-Governance, rather it complements e-Governance [1]. e-Governance uses information technology like WAN, Internet and mobile computing by the Governance agencies. Aim is to transform private businesses and public agencies, and also to empower citizens. While m-Governance, focuses on the use of mobile or wireless to improve Governance service and information "anytime, anywhere".

1.1 e-Governance

"e-Government" is the use of information technologies such as Wide Area Networks (WAN), Internet, and mobile computing by government agencies having the abilities to transform relations with citizens, businesses, and other arms of government. These technologies can help in better delivery of government services to citizens, improved interactions with business and industry, citizen empowerment by accessing information, and more efficient government management. E-Government makes the interaction between government and citizens (G2C), government and business enterprises (G2B), and inter-agency relationships (G2G) in more friendly, transparent, convenient, and inexpensive manner.

1.2 m-Governance

m-Governance is the use of mobile or wireless technologies like cellular phones, laptops, and PDAs with wireless Internet connections for improving Governance service and serve people "anytime,anywhere". Mobile applications rely on good back office ICT infrastructure and workprocesses: Governance networks and databases, data quality procedures, transaction recording processes, etc [1].

Mobile Governance is the application of Mobile/Wireless communication technologies for

1. Delivering Government information/services to citizens
2. Better governance within Government departments

1.3 m-Government

Mobile government (m-Government) is the use of the ICTs (Information Communication Technologies) by government institutions by using mobile technologies for delivering electronic services to the public. M-Government is subset of electronic government (Ntaliani, Costopoulou & Karetsos, 2007), which is a new and important development in electronic government (Ghyasi & Kushchu, 2004). It can also be defined as "using mobile and wireless communication technologies within government administration and then delivering the services and information to citizens" (Kiki & Lawrence, 2006).

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1.3.1 M-Government Services [2]

Many services can be offered to citizens through mobile governments such as:

•*M-medicine*: providing health care to citizens with the help of mobile technology

•*M-voting:* use of mobile technology for electoral processes and participating in democratic reforms

•*M-agriculture:* using mobile technology for supporting farmers by providing update information on market statistics, weather forecasts, best farming practices and disaster alerts.

•*Information broadcasting:* using mobile technologies to broadcast information to citizens.

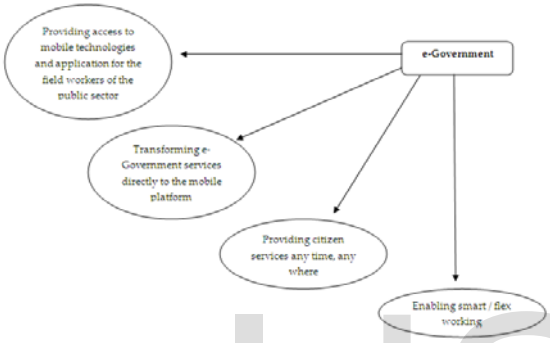

Fig1. Four dimensions of mGovernment

2 Related Work

The solution we come to is an outcome of the survey & study conducted in village(s) Bakarna and Dudhli of Pachwa-Doon Tehsil of Dehadun district. Where some people have smart gadgets, but lacking of knowledge to use them intelligently.

Rameesh Kailasam [1] said that m-Governance is not a replacement for e-Governance, rather it complements e-Governance. In e-Governance we use information technology like WAN, Internet and-mobile computing by Goverment agencies, to transform private businesses and to empower the citizens. While m-Governance, uses mobile or wireless to improve Governance service and to give information "anytime, anywhere". Mobile applications also rely on good back office ICT infrastructure and work processes. In this paper Rameesh Kailasam [1] shares the potential of using mobile phones as input devices in certain areas where last mile connectivity becomes issues for simple data inputs of critical importance for decision making in government departments. He gave following guiding principles:

1) m-government is not a substitute for e-government.
2) All applications cannot run on mobile devices.
3) All wireless connections are not cost competitive compared to wired connection.

It is important to choose m-government applications wisely. They should be nontrivial and user-friendly. m-government applications should ensure that citizens get exactly what the application claims to be able to deliver in the shortest possible time.

Asiimwe Edgar Napoleon, M. Shakhawat Hossain Bhuiyan [2] discussed the Contemporary Research on Mobile Government. Their study shows that common research areas of m-Government focus on public service delivery, implementation of frameworks, historical evolution, challenges and measuring the effectiveness of mobile based services. Many research methods used in m-Government research do not involve users, they recommend researchers to use methods involving user surveys so that user preferences can be served and service quality is improved. Their study helped potential researchers to identify major thematic views for future research in the field of mobile government.

Romit Pandey and KS Vijaya Sekhar [3] studied the migration of technologies from e-governance to m-governance. India is the fastest growing mobile subscribers market in the world with more than 850 million subscribers. Mobile phones are important part of Indian household. In this paper, they analyze the true potential of m-Governance in India. They also examined the areas where the e-Governance services can be made available through wireless and mobile technologies. The paper also rivets on M-Health as well studies some successful m-Governance projects implemented in other countries, and examines the M-PESA mobile commerce project in Kenya. The applications of m-government differ from country to country. In Turkey m-government applications are mostly confined to G2G whereas in Philippines and Estonia, m-government applications are utilized for both G2C and C2G. In the developed countries, most of the m-government applications are highly interactive, on the other hand, in developing countries the interactions are mostly one way i.e. G2C or C2G. Romit Pandey and KS Vijaya Sekhar [3] also suggested that in India, Government should

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implement m-government in three different phases.

1) Applications should be developed to reach citizens in time of crisis such as earthquakes, fire, floods, disease outbreaks etc. They are government to citizen (G2C) services and the flow of information is one way.

2) More interactive m-government applications should be developed to allow citizens' participation in government activities.

3) Highly interactive mgovernmentapplications can be developed, ranging from simple transactions such as payment of taxes, bills and inquiries.

Sanjay Vijayakumar et. Al [4] studied the M-Governance project in Kerala, which is a comprehensive Mobile Governance project covering ninety odd Government Departments. It aims at integrating the advancements in mobile technology with various Government departments with an aim to create cost effective, efficient and round the clock Government information systems.

It used three channels of mobile communication (Voice, Signallingand Data), wide range of technologies(Voice Applications, Applications using signalling channel and data service based Applications) are also being used. Sanjay Vijayakumar examined the approaches adopted to identify services and design solutions, where the primary focus is to leverage existing networks and available wireless technologies. He also presented the various challenges faced while implementing M-Governance, and the solutions deviced to addresssome of those challenges, with relevant case studies. The M-Governance services launched initially are in the pilot mode. The services that need priority should be identified and should be made more citizen-centric.

3 Problem Defination

The problem here is analyzed is of danger of diseases mainly due to the contamination of water. The health status of the elders, children and women is of secondary concern. As sanitation and cleanliness is very much important to stay healthy. To effectively identify and organize affordable, successful and sustainable mobile solutions, we should have clear focus on the targeted policy and service delivery goals, and also a sound assessment of available technology options. Technical issues, problems related to security, identity management, broadband connectivity and the integration and interoperability of systems and applications, also need to be discussed and addressed.

4 Solution

The solution to such a problem is described in a series of instances that may be considered as possible solution in an emerging country like us implementing M-governance.

1st Instance:

The first instance is from village Bakarna, where the water becomes inconsumable due to the presence of iron, manganese and lime and also some kind of bacteria, but the villagers are unable to understand the problem or its possible solution due to their lack of knowledge and facilities. Among the villagers one has a Smartphone; he took the picture of water in a glass and sends it to his friend who works in state government's drinking water supply department. The later person took the information seriously and informs this to scientific officer, who in turn asked for the sample of all the sources i.e. ground water, canal water and natural resources and tested it for consumable or fit for drinking. After this he informs the concerned department to take preventive measures and also trained the villagers how to test for impurities and microbes.

2nd Instance:

This is the instance of a mother- to-be of Dudhli village has started menstrual pain, her in laws calls for emergency services, but it will take time, one of the man in the family randomly uses 3G service enabled smart phone for watching stunts in YouTube(the largest online video server), he browse for caesarian birth in You Tube and click on one and show it to one of the elderly women, after following the procedures the delivery done at home. This is informed to the gram sabha and an application is filed thereafter on the phone itself, then the gram sabha officer precedes this information to the block level. In the meantime infor-

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mation to look after a new mother is browsed through smart phone, and ordered to the drugstore and can be delivered within hour or half.

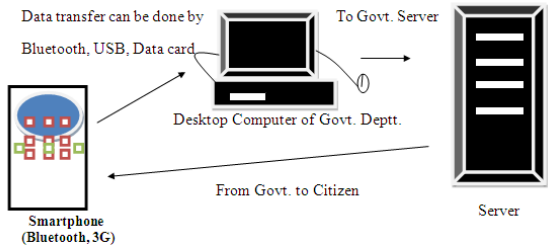

Fig 2. Information Interchange and storage in M-Governance

5 Conclusion

M-Governance is the best solution in our opinion that in a emerging economy and democracy like India where facilities are available but can't utilized by the public especially in rural area, because of lack of knowledge and communication systems. Also due to terrain govt. is unable to establish communication setup. This method of using smart devices intelligently will definitely help in monitoring health status as well as taking preventive measures against diseases in rural India.

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