Health monitoring system for Infant and Mother Mortality by using GIS with Mother Save Android App in Tribal Area East Godavari District,AP

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Abstract: Health monitoring system for mortality of Infant and Mother by using GIs with "Save Mother" Andriod App an important issue in now a days. Now a days in the study area mortality of Infant and Mother is very high and double is comparative plain and urban area, So health services can be extended for the as per population in an effective functioning manner. Geographical Information System (GIS) with "Mother Save" Andriod App can be a powerful tool to make health care is more effective and far more efficient.The era of mobile technology opens the windows to the android is devices has grown to a nearly half a million because of its open source principle is being an enthusiast in technology. This Android application would be very helpful for the pregnant women ,their babies and even the government hospitals of the East Godavari District

.**Key Words**: AndriodApp, Health, Monitoring, Online GIS, GPS, Technology, Base Map, PHC,CHC,ANM,MPHA(F) and ,ArcGIS

Methodology: Geographic Information System (GIS) provide as a common platform covered the mortality of infant and mother of surveillance activities. Public health resources, specific Immunization, angawadi icds feeding , and other health issues can be mapped in relation to their existing health and primary and community health centre. GIS helps to generate thematic maps that render the intensity of infant and mother health conditions (Najafabadi, 2009). GIS is a system composed of hardware and software to collect, process, The Survey of India toposheet 65G/10, 11, 12, 13,14, 15; 65K/ 2, 3, 6,7 were performed geometric correction in ERDAS Imagine-2014,
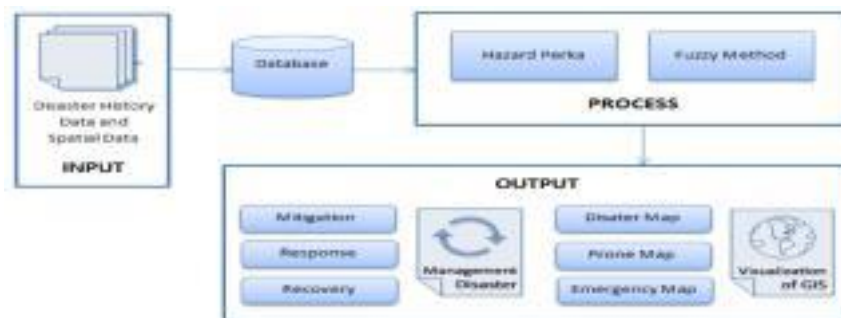

Fig1:methodology

Study Area: East Godavari locale is arranged on north east of Andhra Pradesh in land coordination of 16°30' and 18°20'of the northern scope and 81°30' and 82°36'of the eastern longitude.On the east by Peddapuram Revenue division and west by Godavari River and south by the chattisgarh state. Study area

is the outskirt of 3 states Telangana, Chattisgarh and odisha. According to 2011 Census there are 552 habitation villages. The total revenue division is covered the study area is 4580.67 sq km and aggregate population is 218,385 here.
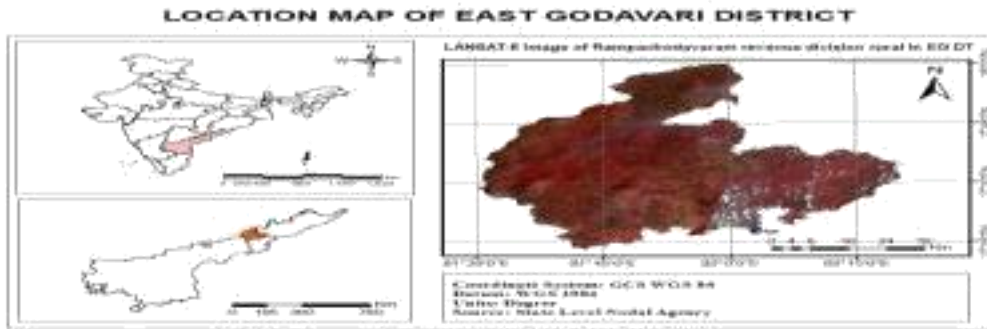

Fig 1: Map of study Area

OBJECTIVES: The mother save android operating system is an operating for mobiles, This is aim to developing a map and Mother Save app is help to infant and mother health system monitoring the officials and effective functioning manner. This is created with low data consumption unlike in other App.. The mobile application needs to be installed in mobile phones. This android App direct to the user to their respective monitoring health system in study area.

Infant Mortality Infant mortality is defined as the infant deaths (less than one year) per thousand live births. The causes of death Report (2006) of India, cites a number of causes for infant mortality. Among infants, the main causes of death are certain conditions originating in the Prenatal Period (P00-P96) (67.2 per cent), certain infectious and parasitic diseases (A00- B99) (8.3 per cent), diseases of the respiratory system (7.7 per cent), deformations and chromosomal abnormalities (3.3 per cent), other causes (10.6 per cent). In 2010, IMR is reported to be 47 at the national level, and varies from 51 in rural areas to 31 in urban areas.

Fig. 2 Trend in Infant mortality rate in India
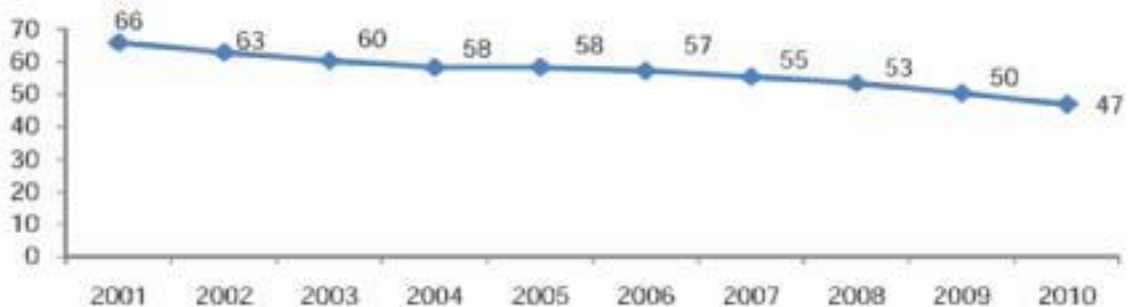
Source: Sample Registration System, Office of Registrar General of India

Though, infant mortality is showing a declining trend over the years, the progress is slow. It has been observed that, infant mortality among female children is higher in most of the years. Infant mortality has declined for males from 78 in 1990 to 46 in 2010 and for females the

decline was from 81 to 49 during this period. The per year decline in IMR was 1.6 points for both males and females and the percentage decline in female IMR is 39.5 per cent and the percentage decline in male IMR is 41.02 per cent during the last two decades.

Fig3 .Infant Mortality Rate by Gender
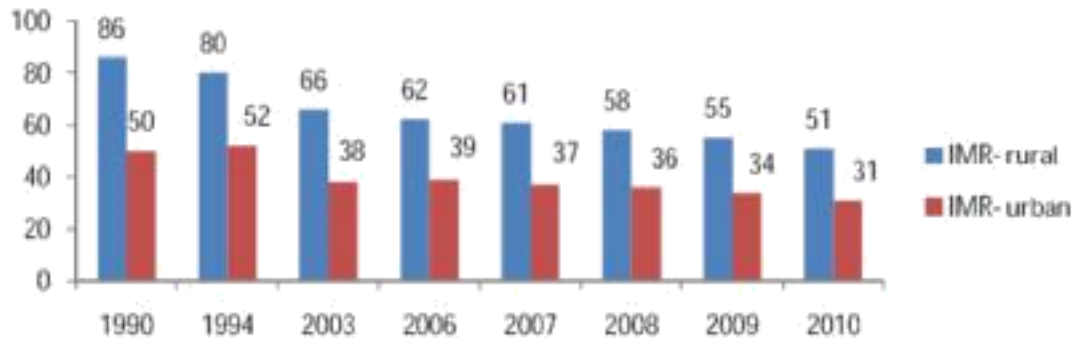
Source: Sample Registration System, Office of Registrar General of India

Causes of Infant Mortality: According to the Survey on the Causes of Death (SCD) report (in respect of infant deaths) of the Sample Registration System, Registrar General of India (2002), the top ten diseases responsible for infant deaths in Andhra Pradesh in the year 1999 are given. The major causes of infant deaths as analysed by the CPDS, Hyderabad (2003) are Respiratory distress of new born / Pneumonia, Sepsis Prematurity / Low-birth-weight, Diseases of liver, Congenital malformation, Tetanus, Typhoid & Paratyphoid, Anemia Diarrhea and Gastroenteritis, Digestive system disorders of and new born, Malaria

Causes of Maternal Mortality

At the national level, a report of the Registrar General of India (1999) estimates the percentage distribution of causes of death for maternal mortality. The Centre for Population and Development Studies (CPDS), Hyderabad has also estimated the percentage distribution of the causes of maternal deaths in Andhra Pradesh. Details from these reports /studies, and the comparative picture on causes of maternal deaths for Rural North India (Kumar, et al. 1989) and the global pattern (Maine, 1991) are Anemia, Puerperal sepsis, Abortion, Hypertensive disease of pregnancy, obstructed labor /

Development Environment

Client Server Architecture: A Client-Server Architecture comprises of two sorts of parts: user and servers. A server part never-endingly tunes in for solicitations from customer segments. At the point when a demand is gotten the server forms the demand, and after that sends a reaction back to the customer. Servers might be additionally named stateless Clients of a state ful server may make composite demands that comprise of numerous nuclear solicitations. Here is a basic part outline demonstrating a server segment that executes activities determined in a Services interface, and a customer segment that relies upon these administrations
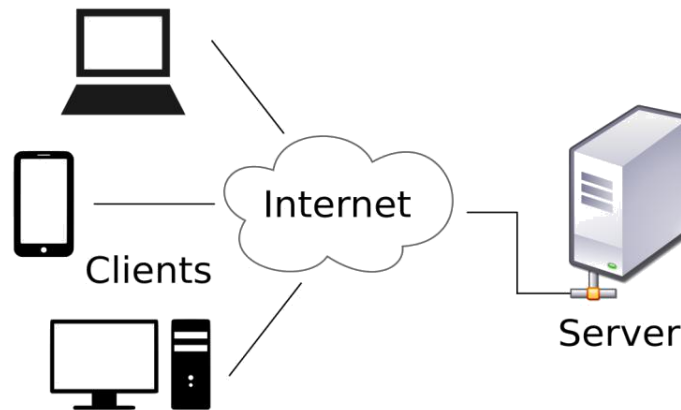
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Fig 4 Client-Server Architecture

Available Technologies: Along these lines, following the server customer design we have our undertaking isolated into two sections, a front end and a back end. A front end here is spoken to by a customer and the backend is spoken to by a server. So we should perceive what are the accessible innovations to create individual frontend and backend bit of programming.

Backend Technologies: The backend or dynamic application that chips away at demand reaction design contains API's, databases, structures, benefit specialists and a working framework. Nowadays designers are approach to administration, for example of Vagrant and BAAS that give modern frameworks to consequently convey the backend contents to any server or cloud.

PHP Frameworks PHP is perhaps the of most popular coding language for web projects. It has been around for almost three decades now and has several important backend frameworks in its inventory.

Symfony is a set of PHP components, are web application framework, philosophy, and a community all working together in harmony. Symfony provides a standard foundation on which developers could build powerful PHP utilization that are strengthen by the standalone Symfony components.

Laravel is a generally new system that the creation of procedure and removes a significant part of the agony from web application venture. It is notable for perfect and exquisite PHP code and improving assignments, for example, confirmation, steering, containerization and lines

Zend is the well known decision making for growing substantial venture level applications, for example, CRM and money related frameworks. Designers get the advantage of a high performing MVC engineering, vigorous codebases joined with extensible parts. Zend bolsters full OOP ideas and the designers could make and convey classes as and when required.

CodeIgniter is an application advances framework a toolbox for PHP site improvement ventures. The objective is to ensure that designers don't have to compose code starting with no outside help. This is made convenient the rich arrangement of libraries for basic assignments and a basic interface (with exceptionally intelligent structure) for getting to these libraries.

Python: Python is a translated abnormal state dialect worked for universally useful programming. Be that as it may, the dialect is better known for information science undertakings and machine language learning applications. The rich sentence structure enables to designers is express more in less lines of codes. As

indicated by the Stack Overflow engineers review, Python has now turned out to be more main stream than PHP with appropriation rate. Programming engineers are currently ready to examine and make the mind boggling database frameworks and structures utilizing Python

Database :

MySQL is the running as an administration giving numerous user access to a database. MySQL is main stream for web applications and works with the database components for the stages (Linux/BSD/Mac/Windows). My SQL prevalence for use with web applications is nearly related to the fame of PHP programming which is friendly and frequently utilized alongside My SQL

Microsoft SQL Server is the one of the leading database for the creation of web or mobile app,and work area database frameworks. It is utilized with different applications at various dimensions. MS SQL Server enables to store huge measure of database. Which handles segments like video, photos, numbers, content, and substantially etc. Microsoft SQL Server is produced to the more data in bytes of information in examination with Microsoft Access that can be deal with just 1 gigabyte of data.

ORACL is the commercial SQL for the social database to the executives frameworks. It is accessible in designs from little close to home renditions to safeguard, undertaking class variants. Prophet offers loads of highlight and usefulness for tackling convoluted issues that is the reason it exceeds expectations in Fortune 100, medium and huge endeavor business applications and distribution centers. This incredible framework requires bunches of profound learning and ability to deal with substantial situations

PostgreSQL is a society database management system is used for web designers are online toward as the back-end database the executives segment. The information and monitoring area is to utilize the their essential information store, so the numerous monetary foundations and extensive organizations. As we will manage GIS information in our uses. The help for the Geo spatial database is entirely accessible in PostgreSQL..

Development

Installing Software : As a part of installation up the environment for the development we need to install various software The first thing to install is a Text Editor. The Text Editor helps to organise things for makes thing easy for installation .If you're interested in ATOM get your latest version form this website (https://atom.io/)Though we are up for developing our App in React Native we need **Android Studio** for configuring our application and some of the third party applications require the sdk platforms and sdk tools through which you can install and configure your React Native App.So, we will grab our latest Android Studio from the(https://developer.android.com/studio/) website choose your platform and install the android studio on your development system.

React Native and Front End:

For the front end to start off we need to install npm package called create-react-native-app globally on our local machine which can be done either with node package manager or the yarn. And you can refer a lot about the React Native at the link and is being constantly developed by Facebook INC (https://facebook.github.io/react-native/) .

This paper is by default installed with the Expo support but to develop and add more features we need to eject out of the epxo environment and start building our native code

with the help of the different node packages and the git hub libraries and all the dependencies for our

project are shown in the screenshot below and also we need the other packges such as react-native-ui-lib for the ui components and the react native maps package to be able to incorporate the google maps in our applcation and also to render the geoJson what we reciever from the REST API what we have developed earlier . Also we need an android device for constant debugging and debugging on react native is so deveoloper friendly and easy.


As we make use of the packages such as react-native-Geo database is able to render the layers we get from theAPI request and also the packages such as react native vector icons to embed the icons into our app and the react native navigation package to navigate between the screens and also the react Health monitoring application. The folder structure in the screenshot shows how the project is structured and the clean bode base helps us in developing or making changes in the future. And the command on the languages on JavaScript and the knowledge

Working
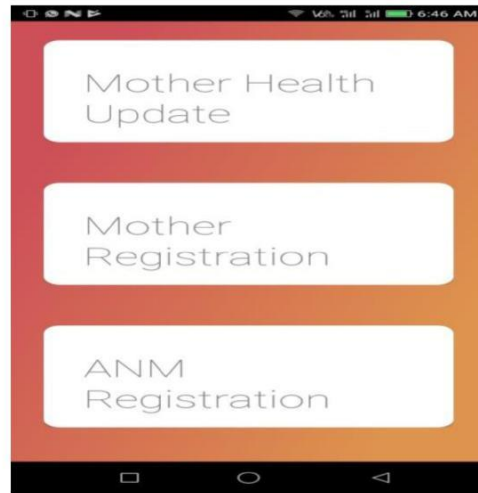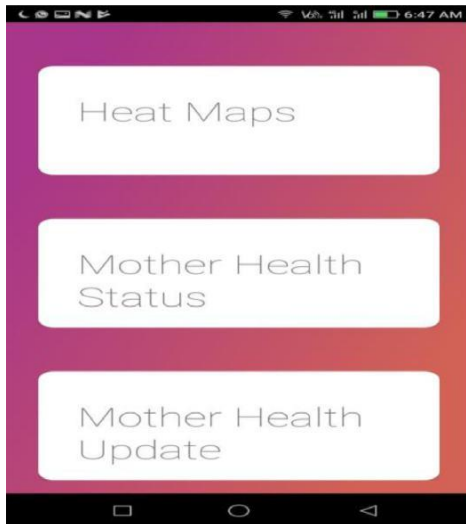
This is the opening screen of the app where the user gets to select different options such as ANM registration, Mother registration, Mother health update and Mother health status and GIS heat maps. A mother should always be registered under an ANM. So first an anm should be registered during the registration the ANM is given with a 6 digit unique which has to be saved for the further requirements such as registration of mother and the health up dation of mother requires this 6 digit unique code. Also when a mother is registered a 6 digit code is generated and even this has to be remembered for further service
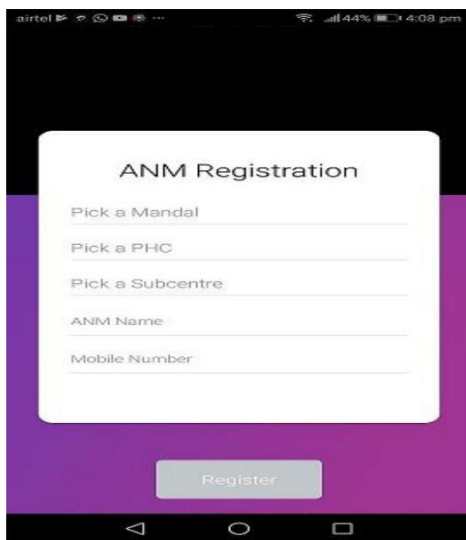
The above details should be filled for the registartation of the Anm and then followed by the mother registration.

Then add the basic health details for the mother and then the normal delivery details

The blood bank emergency details and the emergency blood bank details
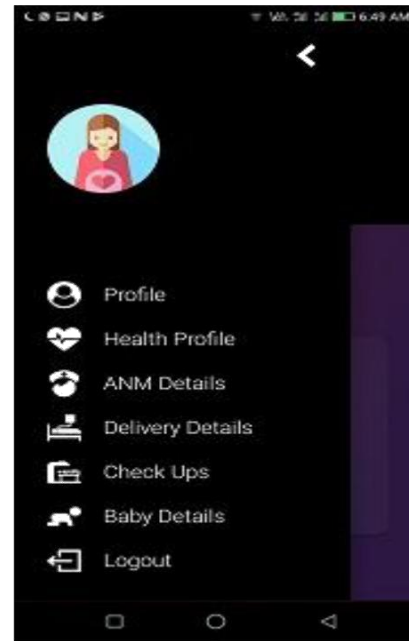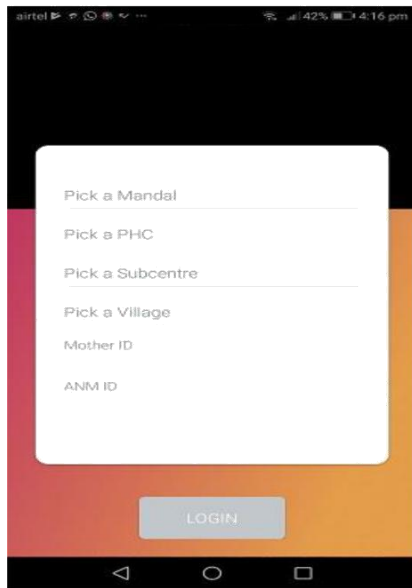
Then you can see the details uploaded to the database by signing using the ANM id and the mother id and the second is the overview of the logline mother profile.
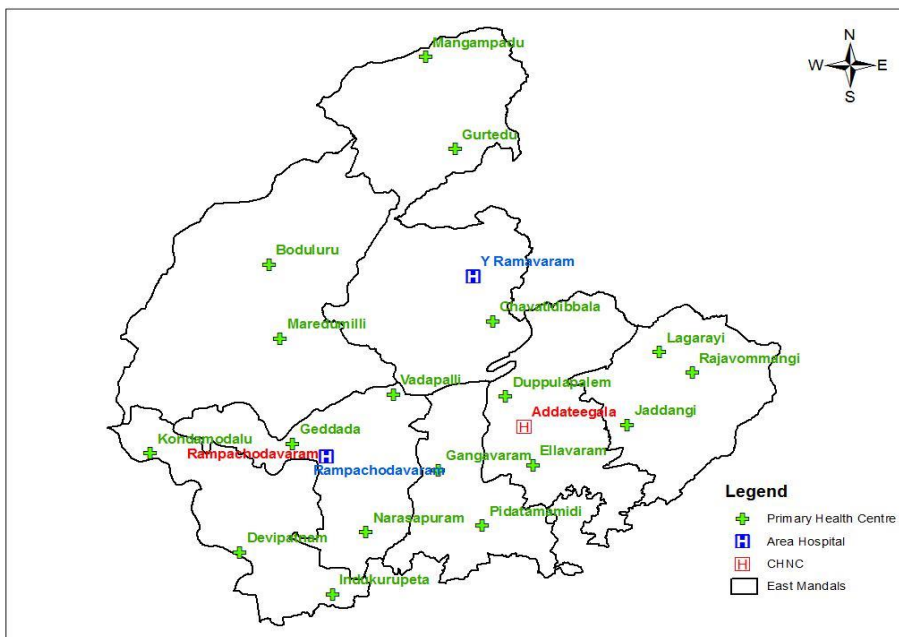

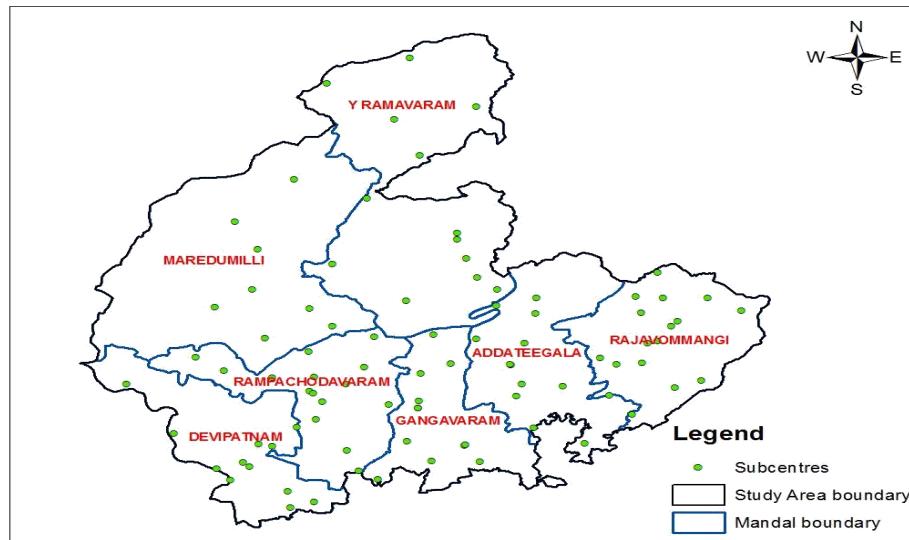Fig 5: Spatial analysis of Health Habitations of PHC,CHC

Fig6:Spatial analysis of Health Habitation of SC

Conclusion:A simple android application which follows the basic of android app development and using basic client server architecture and the java script skills can be help us in developing an android application development. Health-related remote sensing publications are increasing and this paper highlights the importance of these related technologies toward better information and, ideally, better provision of infant and mother health care. This App is an interaction, user friendly and easy to monitoring the official the accountability of staff this is user friendly GUI

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