WEB based Service Platform of Population

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ABSTRACT

"Our Census – Our Future" is the slogan of Indian Census. The Indian Census is the most credible source of information on Demography (Population Characteristics), Economic Activities, Literacy and Education etc. As the Census data plays a vital role for the future of the country it is very important to maintain it properly and accurately. As of now census data is maintained in the database and it is not accessible to various departments. Various ministries can be coordinated with the Census data. The idea of 'Service Platform of Population based on the WEB' deals with the communication of various departments but now this paper is concentrated on Civil Affairs and Health Department. The availability of data helps various departments in taking right decisions in right time in a comparatively better way.

Keywords

The keywords or terms which can be used for general classification are as follows

Census, Integrated Community, Service Platform, Population, WEB, e-Government, Civil Affairs

1. INTRODUCTION

As the trend of floating population is increasing day by day, the previous population management pattern, the household registration system, can no longer meet the information management of the floating population. The floating population of a town constitutes mainly two types. The first category is those types of people who visit the place routinely but do not stay at the place. The reason for such visits is mainly for some job or work associated with the town. The second type constitutes visitors or guests who might live for a small span of time, but their duration of stay as well as next visit are not predictable. Often the second type of floating population is seasonal visitors, like tourists.

Later the population was managed based on the housing information of the actual population, which is an effective manner in dealing the management of floating population. It aimed to solve the problem of the actual population information management and provide complete data-sharing model business for all departments which also can provide service for the entire community's e-government. But as the population liquidity is more, the functional departments are facing limitations like insufficient manpower to investigate and understand the employment information, birth information and optimal object information of the population.

Therefore this service platform helped to manage the corresponding information to improve the community management level and complete information platform to integrate data of all existing information platform and combine

with actual population database. Each department can share the population information with security, completeness, consistency, relevance and dynamic requirements of community population data. By using the computer database technology, network technology and security technology we can realize the actual population information management. We improved the work efficiency and enhance community on social service function; we can take population actual resident population data as the core and provide social security service for fixed and floating population.

The population information management platform is the base of the whole business of information platform. Maintenance of population information system is complex because of the data is related to various departments (as shown in Figure 1) like Science and Technology Ministry, Financial Department, Water Resources Department, Ministry of Labor and Employment, Urban Development Ministry, Ministry of Minority Affairs, Ministry of Drinking Water and Sanitation, Rural Development Ministry, Roads and Transport Ministry etc. for taking decision on various schemes related to Housing & Household Amenities, Urbanization, Technology Exposure, Employability, Fertility and Mortality, Scheduled Castes and Scheduled Tribes, Language, Religion, Migration, Disability and many other socio-cultural and demographic data since 1872[1]. Census 2011 was the 15th National Census of the country [1]. This is only source of primary data in the village, town and ward level. It provides valuable information for planning and formulation policies for Central and the State Governments and is widely used by National and International Agencies, Scholars, Business people, industrialists and many more. Census is the basis for reviewing the country's progress in the past decade, monitoring the ongoing Schemes of the Government and most importantly, plan for the future. But as per the previous discussion population information is related to number of departments and various ministries which are making the population information management complex.
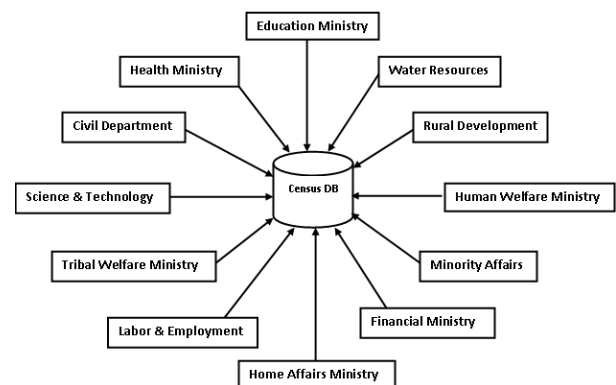

Figure 1: Information Maintenance

To reduce this complexity and make proper utilization of data very few methods / techniques are available in the country. Dynamic methods are required to maintain the population data for a country like India having highest population and developing country. The few existing methods are not cent percent accurate and have some limitations like it is based on the housing information of the actual population. But basing on housing information only is population information management is not accurate. These limitations can be avoided by using the proposed method 'WEB based Service Platform of Population' which concentrates mainly two specified areas.

The next part of this paper is organized in the following way for better understanding. Section 2 of this paper consists of related works and the proposed system is discussed in the section 3 and section 4 describes the results and case studies.

2. RELATED WORKS

In order to improve efficiency of population information management of the fluid population Mr. Wang Xiaoyan and Wang Fang from East China Institute of Technology, ECIT, China proposed a method named as "Comprehensive Service Platform of Integrated Community Based on the Web" [5]. In this method, the previous population management pattern: the household registration system was completely changed and proposed a new idea of managing population based on the housing information of the actual population, which is an effective manner in dealing with the management of floating population. This method aims to solve the problem of the actual population information management and provide complete data-sharing model business for all departments, which also can provide service for the entire community.

The paper is enhanced based on "Comprehensive Service Platform of Integrated Community Based on the WEB". The limitation in the present paper is that based on only housing information we cannot accurately collect the information and manage it. Actual population information and actual housing information is not sufficient instead if we can maintain a unique ID right from the birth, for each individual it will be much better even to handle the history of each individual. This paper also deals with Civil Affairs and Health department as main core.

2.1. Limitations

The existing system is having some limitations to implement it as it is in India. The limitations are as follows

(a) It is very difficult to maintain the data on person id as we do not have any person id, so we have to generate unique identification.

(b) The existing system is collection population data and actual data based on only housing information which is not accurate to the extent.

(c) Depending on housing information cannot maintain the increasing population and it is not recorded anywhere in the existing system.

3. PROPOSED SYSTEM

The 'Comprehensive Service Platform of Integrated Community Based on the WEB' is based only on housing information which is a limitation and by this method we cannot accurately collect the information and manage it. Actual population information and actual housing information is not sufficient instead if we can maintain a unique identification for each individual right from the birth, it will be much better to handle the history of each individual.

The proposed system relates the census data to unique identification of Aadhaar Card number issued by the Government. This unique identification can be related to the House Number and all the transactions can be made on that identification. Maintaining the data based on unique identification is helpful to various departments. For this purpose while calculating the census the Aadhhar Card number is made mandatory and the person not having unique identification are identified and they will be given a temporary identification for a period of 3 months, later which should be made permanent or else they will not be eligible for any government schemes. The personnel without permanent identification will be kept in a temporary database and once they receive the permanent identification the data is transferred to the main database.

This system also proposes all the hospitals and health care centers in the country to register in the WEB. They have to input all the details of patients, their health problems and also reasons for the same. As people will visit hospital for various reasons, it helps to identify the persons without unique identification and alert them about the same. Over a period of time it yields to very good results. Even the hospitals / health care centers have to input the new birth details along with the father / mother unique identification and later it generates new identification number to the personnel. This method supports the system continuously and eliminates the problem of not having unique identification in future generations.

The maintenance of unique identification helps to various departments to identify the individual and also to take necessary actions in the required area. The unique identification number is also helpful in various aspects like analyze the migration of population from one to place to another place, and various departments will be benefited. The registration of hospitals and input from the same will help to assess the problems in various areas depending on the health complaints of the people like viral infections are due to contaminated water, diarrhea is due to improper sanitation, tooth problems are due to fluorine content in water etc. This kind of problems can be identified area wise and proper measures can be taken as per the requirement.

The proposed system also creates an opportunity to identify the hospitals / health care centers that are not registered in the WEB by comparing the list of centers registered in the medical council. This also helps to identify the people that are running unauthorized health care centers. The registration also includes the details of Doctor taking care of the hospital and the health department can also concentrate on the quality of doctors working over there. Unauthenticated and not qualified doctors can be identified and necessary measures can be taken according to the requirement. For this the site can be correlated to the MBBS seats and all the qualified doctors information must be provided in the site for better and accurate comparison.

3.1. Architecture

The proposed system will use the Client Server Architecture as it is purely web based application. It is browser as client and all the operations are through the browser only. Users can easily perform the population platform through the Internet Explorer or any other browser. Proposed System architecture is as shown in the figure below.
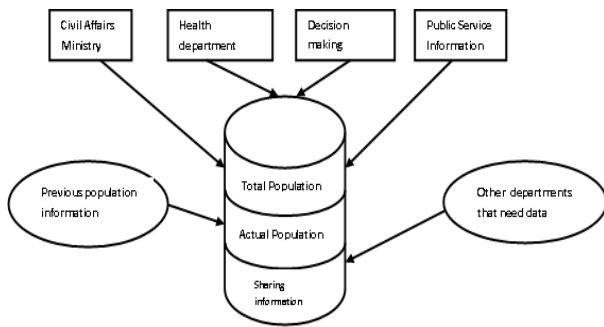
Figure 2: Structure or architecture of the system

The proposed system uses MVC design pattern. It uses SQL Server as backend database support, Visual Studio 2008 as front end tool and ASP.Net as web library to develop web pages. We are using C# as the server side programming language and Java Script as Client side scripting language. The data flow and organizing is as in the following figure 2.

3.2. Functional Modules

The various functional modules of the proposed system are
  (a) Information Collection: It is the base of the information platform.
       - Housing information collection
       - Unique identification information collection
       - Health Centers information collection
  (b) Coordination of Departments: All the departments can be coordinated with the collected information but here we are concentrating in coordinating the civil affairs department and Health Department.
  (c) Report Generation: Generating various reports demanded by various departments as per the requirement.
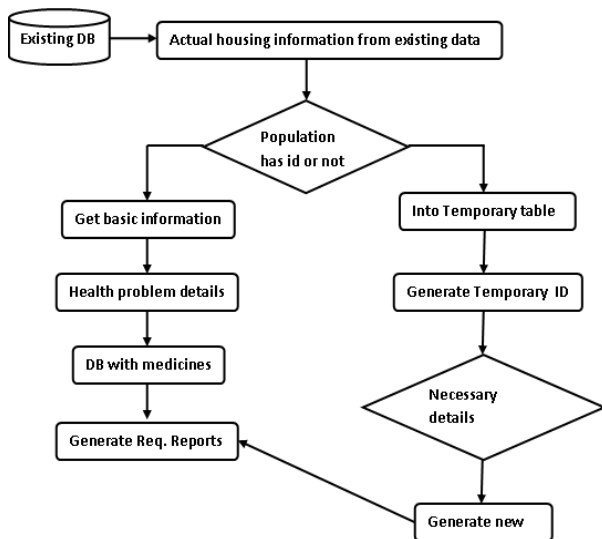

Figure 3: Population Information Collection

4. STATISTICAL ANALYSIS

The Analysis of population data is the ultimate purpose of any population information management system. This analysis of data only helps various departments to take decisions for the welfare of the society and also for policy making decisions. Population Analysis helps to generate Analysis Reports in

various forms like table formats, graphical representations like bar graph, pie charts and even sub reports also.

The analysis can be done based on various conditions like age, sex ratio, religion, caste, literacy rate, poverty ratio, blood, mortality rate, cultural degree, employability, political outlook etc. All these analysis can be summarized and we can also make further data mining about various attributes and implement further plans if anything to be changed. For statistical analysis a query builder is provided so that the user can retrieve the data depending on the requirement but not predefined. The statistical analysis results are given with a sample data of 100 people. The statistical analysis is done through Crystal Reports tool and this analysis can also help in taking right decisions for the welfare of the society or population.

The following are some of the statistical analysis code for various statistics.
 ➢ Age : To identify the population under various age groups
      // String qry = "select State, District, age, count(*) from <table name> group by age;

Table 1. Age wise statistical data

Census Data Depending on the Age - State Wise			
State	District	Age	Count(*)
Andhra Pradesh	Adilabad	0 to 5	5
		5 to 12	10
		13 to 19	21
		19 to 40	30
		40 to 60	15
		60 above	19
	Anantapur	0 to 5	
		5 to 12	
		13 to 19	

 ➢ Sex Ratio: Male / female sex ratio at birth and also for marital status.
      // String qry = "select gender, count(*) from <table name> where maritalstatus = 'Unmarried' group by gender;

Table 2. Male female ratio analysis

District Wise Male - Female Ratio			
State	District	Male	Female
Andhra Pradesh	Adilabad		
	Anantapur		
	Chittoor		

 ➢ Literacy Rate: Literacy rate is the measure to identify the growth of the country. It can be identified by the population information management and take steps to improve it as in India still literacy rate is low.
      // String qry = "select count(*), age, gender, caste, religion from <table name> group by age, gender, caste, religion;

Table 3. Analysis of Literacy Ratio

District Wise Literacy Ratio			
State	District	Male	Female
Andhra Pradesh	Adilabad		
	Anantapur		
	Chittoor		

> Birth Rate: By the online data we can assess the birth ratio of the people and can take necessary measures to develop a better generation.

Table 4. Birth Ratio

District Wise Birth Ratio			
State	District	Male (Births per day)	Female (Births per Day)
Andhra Pradesh	Adilabad	100	95
	Anantapur		
	Chittoor		
	East Godavari		
	Guntur		

> Poverty Ratio: Measures to improve the people economic state can be done by the statistical analysis of poverty ratio.
> // String qry = "select count(*), gender, caste, religion, economy from <table name> group by gender, caste, economy;

> Health Status: The database containing the information provided by hospitals and health centers can be used to generate a report containing the health problems faced by various districts area wise. This analysis helps the health ministry to take necessary actions district wise and area wise taking the health problems into consideration.
> // String qry = "select distinct healthproblem, District, Area, count(*) from <a.table name>, <b.table name> where a.districtid=b.districtid and a.areaid = b.areaid group by healthproblem, district, area;

Table 5. Health department Data Analysis

District Wise Health Problems			
State	District	Health Problems	Affected People
Andhra Pradesh	Adilabad	Viral infections	25
		Bones and tooth problem	20
		Contagious diseases	10
		Diorreha	5

> Mortality Rate: In India mortality rate was reduced year by year but still reasons of mortality are vital to take safety measures and improve the road safety, arrangements for medical facility etc.
> // String qry= "select count(*), gender, age, mortalreason from <table name> group by gender, age, mortalreason;

> Medicines Prescribed: The same database can also be used to upload the prescribed medicines data and can calculate or assess the most frequently used medicines and their impact on the common people. Necessary actions can be taken accordingly to avoid the dangerous medicines.

Table 6. Medical data analysis

District Wise Prescribed Medicines			
State	District	Health Problems	Medicines used
Andhra Pradesh	Adilabad	Viral infections	
		Bones and tooth problem	
		Contagious diseases	
		Diorreha	

> Employability: Employability is the main aspect for the growth of economy, the rate of employment can be analyzed and various measures can be taken to improve the skills which also help for employment.
> // String qry = "select count(*), gender, occupation from <table name> group by gender, occupation

> Unique ID: Identify the people not having unique identification and encourage them to go for the same as it is mandatory to get the benefits of the government schemes.
> // String qry = "select count(*), gender from <table name> where unique identity is null and group by gender

5. CONCLUSIONS

This service platform has integrated the data and the business functions needed to share the population information and related business logic for each department. It guarantees the consistency of data and avoids redundancy. This proposed system after development is extensible, easy to use and easy maintenance. This database combines the unique identification, actual population information and housing information. The database as the core integrates the family planning, health, civil affairs, labor management, public security, municipal, education, finance, communication and some other functional department resources. The system is also provided with a query builder where various queries can be developed by the user according to the requirement and get various reports about the aided analysis, decision support, statistical analysis service, family planning statistics etc in order to share the needs between the departments.

6. ACKNOWLEDGEMENTS

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