Develop a Village Information System (VIS) Application Using Visual Basic (VB) Programming

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Abstract

Organizations like Space Application Centre (SAC), Ahmedabad (ISRO) and other several institutes have working a large number of projects related to the Resource Development. GIS awareness and requirements have increased manifold, especially in the Government sector. GIS based Village information system (VIS) will help to improve the governance by decentralizing planning at micro level. In various studies of geoinformatics provides information specifically for analysis and VB programming with particular domain has been integrated in this study on a single platform for effective decision making. Programming languages can be used to write the programs that work as a mode of human communication between system and man. VISUAL BASIC is an ideal Programming Language of Microsoft used on Windows platform for small and medium scale application development.

The data like land records, cropping details, soil information, household details, demographic aspects, various types of maps, graphs etc. are stored systematically and one can make use of it as per the given access 24 × 7. This application is dealing with both in English and Marathi language. In this paper an attempt is made to construct village level information system using visual basic programming language.

Keywords: Village Information System (VIS), Visual Basic (VB), Programming Language, GIS.

1. Introduction

Organizations like Space Application Centre (SAC), Ahmedabad (ISRO) and other several institutes have working a large number of projects related to the Resource Development. GIS awareness and requirements have increased manifold, especially in the Government sector. GIS based Village information system (VIS) will help to improve the governance by decentralizing planning at micro level [1]. In various studies of geoinformatics provides information specifically for analysis and VB programming with particular domain has been integrated in this study on a single platform for effective decision making. A programming language is a machine-readable artificial language designed to express computations that can be performed by a machine, particularly a computer. Programming languages can be used to create programs that work as a mode of human communication between system and man. VISUAL BASIC (VB) is a high level programming language which was evolved from the earlier DOS version called BASIC. BASIC means Beginners All-purpose Symbolic Instruction Code. VISUAL BASIC is an ideal Programming Language of Microsoft for developing small and medium scale applications for Windows platform. The programming languages have made many things simpler and systematic. Visual basic is very good language for the beginner developer [2].

The aim behind the development of this application is very wide and genuine. Village Information System is an application which contains data about important aspects of a village. This application is developed for considering the need of data storage, management and display. In a village there are many transactions occurring regularly, as this information is very much important it has to be preserved properly. This system contains variety of data like land records, cropping details, soil information, household information, demographic details, various types of maps, graphs etc. The data is more important aspect of any kind of planning and decision making process. Many planning get fail due to non-availability or inadequate data. This system will store various types of data related to village. This application is available in English and there is a possibility that it may be used by a person who doesn’t know English. Therefore one attempt has been made to present some sample data in regional language i.e. in Marathi. For the holistic development of village there is needed to adopt an integrated approach to the development / strategy [3]. The first step in implementing such a plan
is the generation of data/information of all the sectors (Land Use, Socio-Economic, Demography, Infrastructure, etc.) on a common platform so that it is accessible to all the user agencies for analysis and scenario generation [4].

2. Aim and Objective
The main aim of this paper is to construct inclusive village level information system applying visual basic. Following are the specific objectives:
- To prepare different display forms using VB programs and connect it to database.
- Assemble different forms and prepare comprehensive system for use.
- To create Marathi user friendly interface using Unicode.

3. Study Area

![Fig 1: Location Map of Study Area](image)
The selected study region for this work is a village “Savali”. This is a small village located in Miraj taluka of Sangli district, Maharashtra, India. It is located within coordinates of 16° 46’ 28” to 16° 53’ 45” North Latitude and 74° 31’ 08” to 74° 40’ 51” East Longitudes and covers 536 hectares area

4. Database and Methodology
In information system data plays a central role. This study is based on both primary as well as secondary data. Agriculture landuse data and household information is collected through field work. Some information published in secondary sources is also incorporated in the database.

The designing task is initiated with flow chart of programs. Considering the actual work flow separate forms are designed and these are linked to database. Some forms are designed for representation in Marathi language. All forms are interlinked together and comprehensive system is prepared. Some data records are entered in the system for testing purpose. The occurred errors are removed and made system ready for its use.

5. Selection of Programming Language (VB)
There are various programming languages available in market and developer is having various options [5]. In this study Visual Basic is selected because:
- Easy to work and full set of objects to 'draw' the application
- It is windows base and response to mouse and keyboard actions
- Enough suit for all small as well as medium scale applications[6] also having direct printer access
- Useful debugger and error-handling facilities [7]
- Author is acquainted with it and it is suitable for this application development by all respect.

6. Result and Discussion
Developing an information system and use of programming language is very much technical. The aim of present study is to develop an application and its implementation. The outcome, snap shots of developed application are presented in below section and discussion is made.

VIS is not only storing the information but also contains privilege to add, update and delete the data. It will be useful to many users on various levels like government officials (Talathi, Gramsavak), planners, researchers and common person who are interested in the information. This system focusing various aspects and covering huge information and the user may have its own area of interest. This developed system will share the information on one platform which will be helpful for effective administration.

Since this data is having dynamic nature it has to be updated on regular basis. Therefore, this application
contains a tool by which the user can upload the present data. Once the data is available anyone can use it for their own use and various types of analysis are possible on it. To show the data in Marathi language ‘Unicode’ application is used. This software contains many aspects but due to the limitation of write-up space few snapshots are given below, which will be useful to understand the developed application.

6.1 Main Window
The main window (fig.2) is a front page screen of VIS application contains title, login window, etc. If user wants to access the information he has to choose the option either English or Marathi. The login window is developed for the authentication of developer and super user. If proper login and password entered it will give access for the data modification. If user clicks the ‘Maps’ button it will open the digital mapping information about the village.

6.2 Marathi Information
There might be users who require information in Marathi. Hence, in this application there are some windows which contain information in Marathi language. The land record information of land parcels, household records, cropping data, etc. are made available in Marathi. Fig.4 shows the parcel-wise data about agriculture crops in the village and fig.5 is about general information of land parcel.
Figure 6 shows main menu which represents particulars of Land Record like General Information of Land Parcel, Ownership Details, Other Rights of land and crop information. The design of main window is made by considering the data volume. If there are more than two records then it is shown by the grid view and single data-set is represented in text box format. General information window shows all details of particular land parcels along with its map. The snapshot of above mentioned aspects of land are given below (Figure 6, 7, and 8).

6.3 Entire Information of Land Parcel (7/12)
Figure 8 shows entire information about particular land parcel in one screen. As this screen shows all information at once it helps to get clear idea about that individual survey plot. The information of all associated four tables is shown at once along with the map, in other words it is complete 7-12 record of particular survey number. While one particular land parcel is concerned then for mapping purpose in 7/12 with map the selected survey plot appear in the middle and all adjacent survey plots and their limits are also shown properly.

6.3 Non-Agriculture Land Parcels
The figure 9 shows information of a particular land parcel which are under non-agriculture landuse. All sub plots form of particular main survey number is shown in one screen, this will help to understand how many sub survey numbers, their owners, etc. If user is interested in only specific non-agricultural (N. A.) plot, then he can choose the next option which contains further information about the sub-survey number plots in detail.

6.4 Household Details
The user can get the information about particular house in the village by selecting particular window. It contains the information like general information of selected house, demographic information and other related information. The general table contains name of house owner, house number, house type, location of house, etc. (Fig.10)
The demographic information of particular house is shown in the family table i.e. number of person in the house, sex, age, education, working place, income, etc. information is available. (Fig. 10)

The last screen of household menu is of other information it consists many things like who is the respondent, his age, sex, education, etc. the amenities available in the home, the satisfactory level about the facilities and services in the village, needed service, infrastructure, vehicle information, etc. This data is very much useful for the analytical task [9].

6.5 Data Entry and Updation
This system is developed in such a way that user can update and add the data as per the changes taken place during particular time period. But this privilege is given to super user. It means common user can’t do any updation only super user can have this facility.

6.6 Birth, Death and Marriage Records
This system maintains the information about birth, death and marriage occurred in the village. It is having facility to generate the official certificate, which is needed in administration process at several levels. Along with this user can produce various kinds of reports like how many births or deaths took place in particular time period, what is the age of a girl or boy during marriage time, etc.

6.7 Analytical Graph, Charts
In main menu analytical chart, graphs and maps are made available for the reference of user. The collected data is entered in MS Excel and various types of graphs and maps are prepared on the data. Fig.
6.8 Conclusion

Every one concerns about a village is interested in first hand and authentic information, same time who is visiting first time also wants to get first hand information about the Location of village, Approach to the village. The information about the topographic aspect of the village, population dynamics, cropping data, facilities available therein, etc. are very much important. In the development of VIS along with programming language the web based / mobile platform is also very much useful. The collection and sharing of data can be done better through mobile. Visual basic programming language is very good capabilities for the initial developers. It fulfils all the demands of small scale applications. In case of VIS it is best experience and busted the author for further development. In next phase the VB .NET is applied and tested successfully.

Fig 14: Most Needs Service for Villagers

There are two main categories one is Maps and other is Graphs. The graph is again sub-divided into two categories i.e. Land related graphs and Household related graphs. Fig.15 is the soil distribution map of village.

Fig 15: Soil Map
10. References


