GEOGRAPHICAL INFORMATION SYSTEM BASED WEB IDENTIFICATION OF POTENTIAL AREAS GARUT DISTRICT

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ABSTRACT

Garut district has the potential for a variety of areas, both potential livestock, agriculture and industry. In an effort to develop the potential of this region, technological approach in obtaining the information is still lacking.

Under this approach the potential of information technology areas are expected to be accepted by more optimally by the community at large, and potentially regional development can be planned well. This condition can be overcome by the Geographic Information System (GIS) that can provide the data attributes of an object map and spatial data.

The role of GIS in the development potential can be used as a tool taking action against a potential area for further development. GIS is presented with a web-based on this design can also be used as a tool to provide information to the public.

***Keywords**: Geographical Information System, Potential, Map*

1. INTRODUCTION

1.1 Problem Identification

How to build a Geographic Information System Web-Based Identification of Potential Areas For Garut District.

Object of research conducted at the National Planning and Regional Development Garut District.

1.3 Objectives

The purpose of this research is to develop geographic information systems, web-based identification of potential areas Garut District.

The goals of this research is :

1. Providing data and web-based information to the potential distribution of agricultural, livestock and industry can be recognized by the public or investors who want to develop the potential.
2. Ease in obtaining information spatial data and non-spatial data quickly about the spread of potential locations of an industrial region, agriculture and animal husbandry equipped with supporting spatial maps such as roads, boundaries and traditional market district on the map.
3. In order for the data from this potential can be updated at any time in accordance with changes in potential data.
4. By drawing through a digital map information obtained is expected to more integrated spatial data with non-spatial data.

1.4 Benefits

The benefits in the development of geographic information systems, among others :

1. Can help facilitate the search for potential locations.
2. Can accelerate the potential of the information seeking process.
3. May introduce potential to the public.
4. Can facilitate the reading of maps of potential distribution.

2. MODEL, ANALYSIS, DESIGN AND IMPLEMENTATION

2.1 Model

1. Data collection phase
   a. Studies Library.
   b. Observation.
   c. Interviews.
2. Stage of software.
   a. *Requirements analysis and definition*
   b. *System and software design*
   c. *Implementation and unit testing*
   d. *Integration and system testing*
   e. *Operation and maintenance*

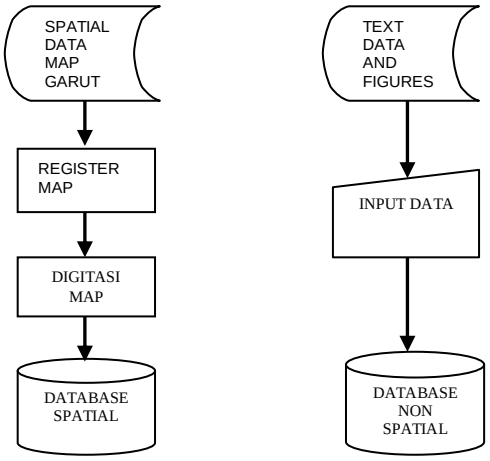
2.2 Problem Analysis

Garut Regency has 42 districts, types of commodities the most prominent as the potential of Garut regency itself is a commodity agriculture, animal husbandry and cottage industries.Unfortunately, processing and development of this potential lack of coordinated so that growth becomes slower. This is due to the difficulty to obtain information about what is appropriate potential to be developed and located in areas where the potential is located. Because of this lack of information is that the developer or investor is difficult to identify areas of potential.

2.3 Geographic Information System

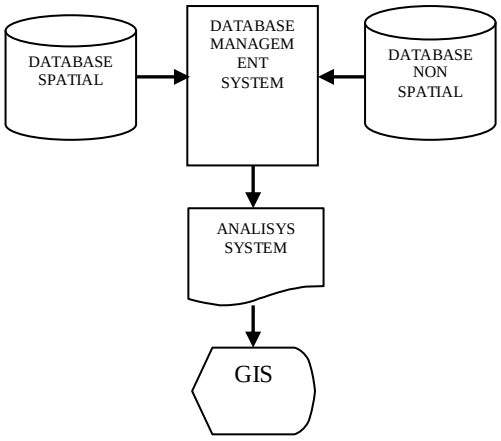
Geographic Information System (Geographic Information System) is a specialized information system that manages data that have spatial information (spatial bereferensi). Or in a more narrow sense, is a computer system that has the ability to build, store, manage and display geographical berefrensi information, such as data identified according to location, in a database.

2.4 Flow Diagrams Web Database Management SIG



Gambar 1. Spatial Data Creation and Non-Spatial

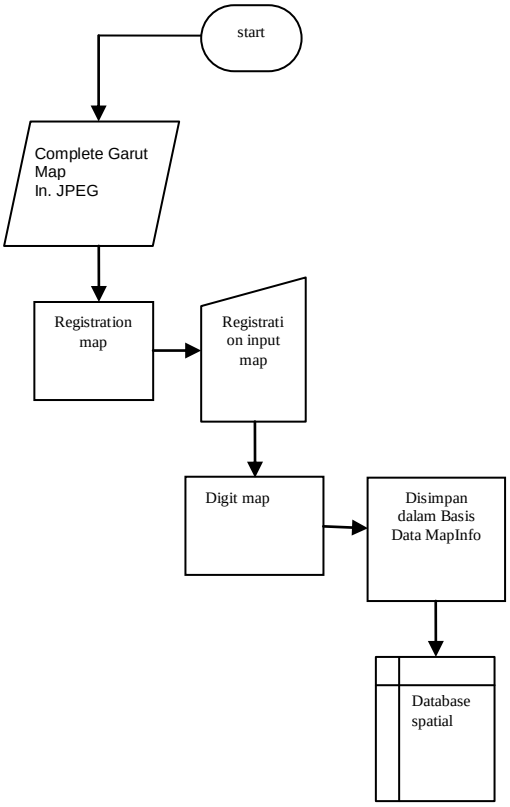
Generally, there are two types of data in the development of GIS spatial data (spatial) and non-spatial data (data attributes). Both these data must be integrated together in order to display the information needed. Both types of data should be stored in a database hirarchi.



Gambar 2. Diagram database management planning.

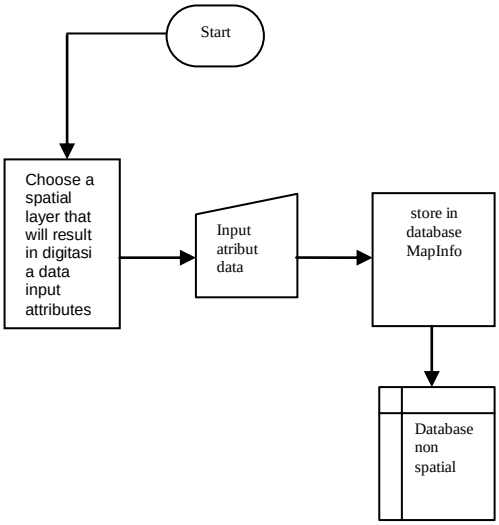
2.5 Flow Diagrams Web Development SIG

The most important thing in the spatial data processing is at the time of registration and digitasi map, because it deals with the accuracy of the position of objects on the map. The first thing to do is register your base map document first, if the registration is complete, the next is done in accordance with digitasi base map already registered. Digitasi conducted with several layers according to the purposes and completeness deangan maps and each layer is then stored in the database.



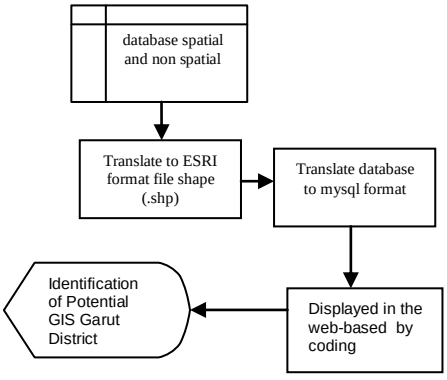
Gambar 3. Flow diagram of spatial data processing.

If digitasi completed, the next is with menginputkan attribute data of each object on each layer, and attribute data is also stored in the database with MapInfo spatial data.



Gambar 4. Flow diagram of non-spatial data processing.

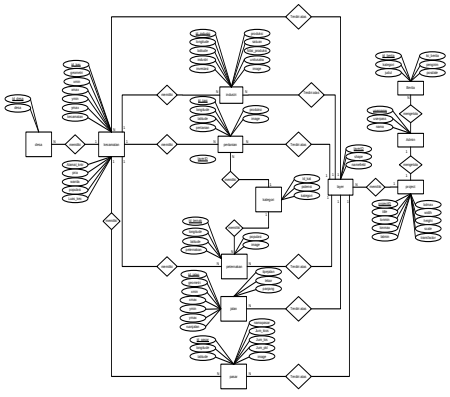
The next step should be done if we want to create a web-based GIS is to convert the file digitasi results and attribute data input had to get a database in mysql format. Because the authors did digitasi using MapInfo, it must first be converted to ESRI formats (. Shp), after which it then format files ESRI (. Shp) is the translate into a mysql database format using ArcView. If the format of the mysql database has been established is displayed next to the browser with the coding.



Gambar 5. Flow diagram of the data conversion process.

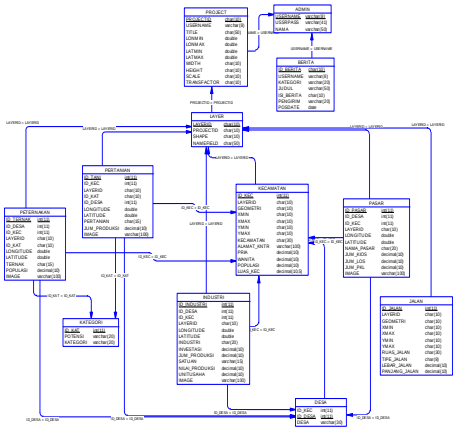
2.6 Design

1. ERD (*Entity Relationship Diagram*)



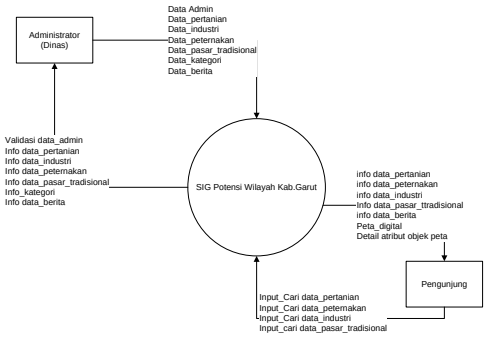
Gambar 1. ERD (*Entity Relationship Diagram*)

2. Relation table



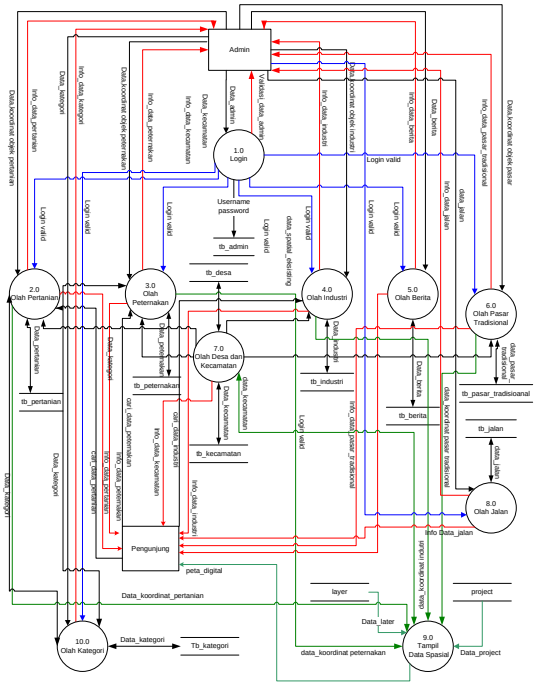
Gambar 2. Relasi table

3. Diagram context



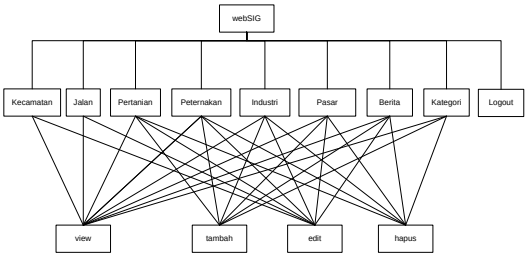
Gambar 3. Diagram context

4. DFD (*Data Flow Diagram*)



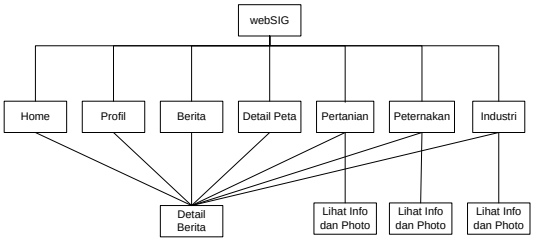
Gambar 4. DFD level 1

5. Menu *web admin*



Gambar 5. Architecture web admin menu.

6. Menu web visitors



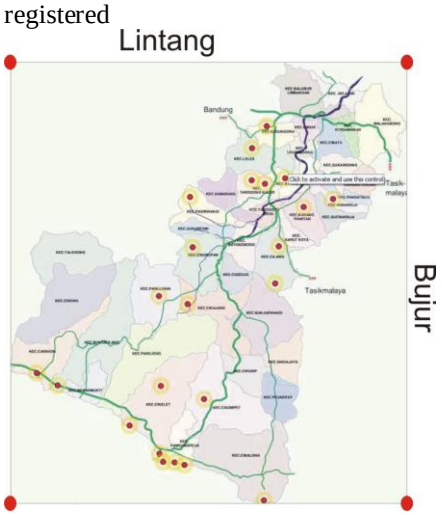
Gambar 6. Architecture visitors menu.

2.8 Implementation

The software used on computer systems in building GIS Web site identification potential of this region is as follows:

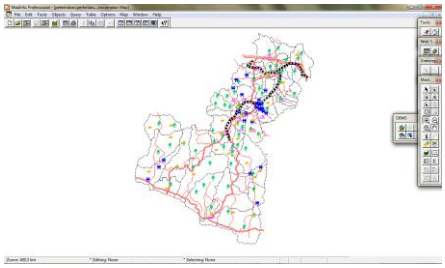
1. *Windows XP Profesional SP 2 Operating System.*
2. *XAMPP* for *local* internet and building database.
3. *Macromedia Dreamweaver* 8 for coding.
4. *Adobe Photoshop* for editing pictures.
5. *Map Info Profesional 9*
6. *Arc View* 3.0
7. Ekstensi *Opensvgmapserver101*
8. *Internet Explorer* sebagai *browser*.
9. *SVG Viewer* as plugin to read geometry data.

1. Basic map display that will be registered



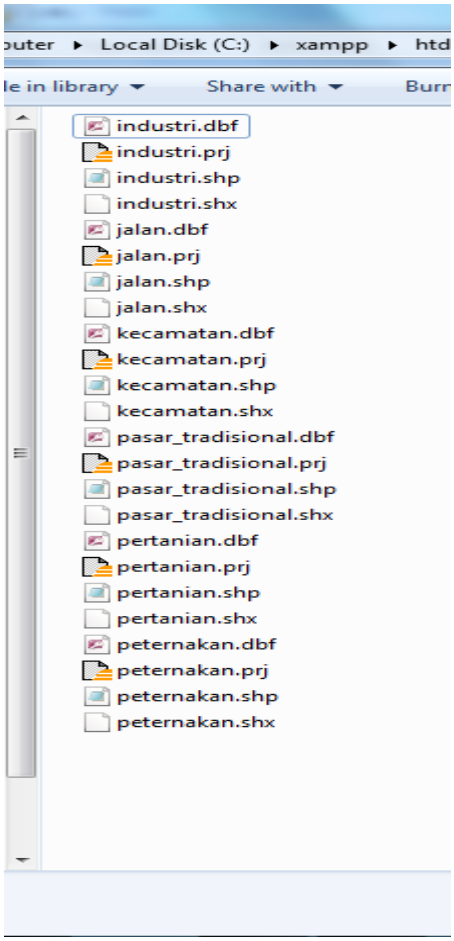
Gambar 7. Basic Map

2. View map of registration and digitasi



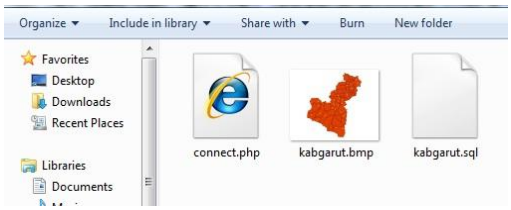
Gambar 8. Map of the registration and digitation

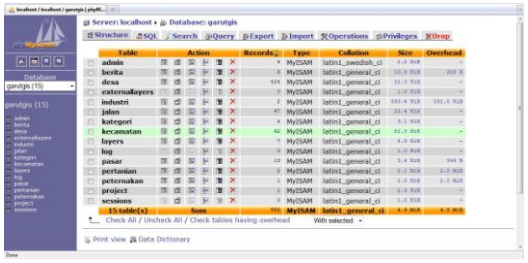
3. GIS database conversion results from. TAB to ESRI format (. Shp)



Gambar 9. Spatial data in ESRI formats

4. GIS database conversion results from ESRI format to mysql format.





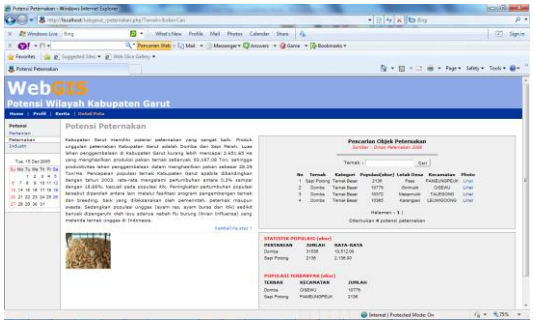
Gambar 10. GIS database mysql

5. Main page view visitors.



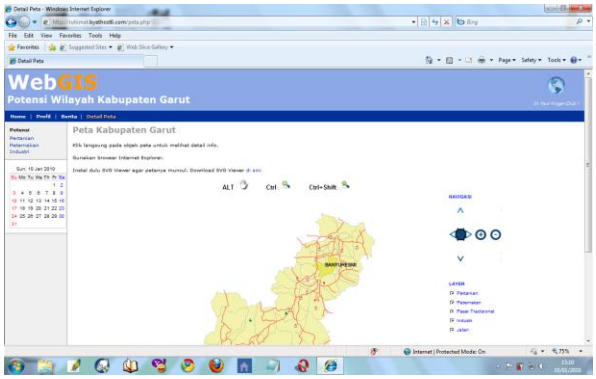
Gambar 11. Page index visitors.

6. Potential pageviews



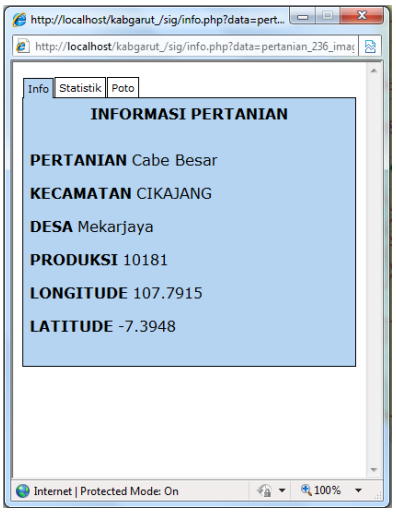
Gambar 12. Potential page

7. View map detail page



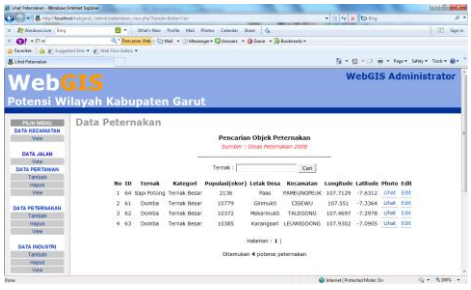
Gambar 13. Halaman deatil peta

8. View info object map



Gambar 14. Page info map

9. View admin manu



Gambar 15. Page admin menu

3. RESULTS AND DISCUSSION

3.1 Potential Areas GIS Facilities

Information system built has the following capabilities :

a. Produce distribution map of the location of agricultural commodities, livestock and industrial objects with other supporters such as roads, district boundaries and the location of the traditional markets that affect the potential for commodity distribution activities.
b. Classification map to produce agricultural commodities, livestock, and industry data and attributes of potential objects on the map and can be accessed directly from these maps.
c. Produce maps of distribution range of these commodities.
d. Produce maps of areas not yet have the potential.
e. Can make a joint analysis of various data to produce a conclusion or a result of geographic analysis.

3.2 Specifications Software

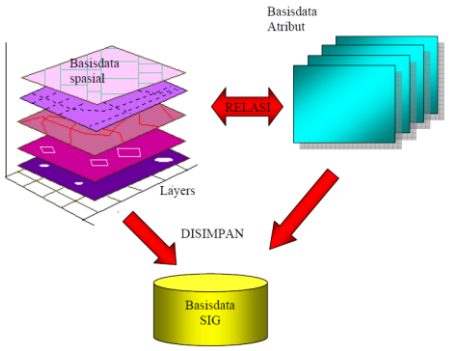
WebSIG will run normally on the following software specifications:

a. Windows Operating System
b. Internet Eksplorer with SVG ViewerIE
c. Or Mozilla Firefox with SVG ViewerFirefox

SVG (Scalable Vector Graphics) is the standard format document provided to create vector based graphics content over the web. With the concept of this vector, the resulting display can be arranged and processed by sekalanya graphics computing, so if you do the enlargement process (zoom) the result is good.

3.3 How it Works GIS

GIS connects a set of map elements with attributes in the unit known as "layers". Examples of layers such as rivers, buildings, roads, marine, administrative boundaries, forest and others.Collection of these layers forms the basis of GIS data. Thus, the database design is essential in GIS to determine the effectiveness and efficiency of feedback processes, management, and GIS output.



Gambar 16. How Its work GIS

4. CONCLUSIONS AND RECOMMENDATIONS

4.1 Conclusions

1. System builders to provide a picture area of potential distribution in Garut regency with a web-based so that the potential of Garut region can be known by the public and in addition we can know which areas have the potential dominant and which areas are not.
2. With the geographic information system is the potential spread of information can be obtained quickly and can produce output in the form of digital maps.
3. In this system a database of each object maps can be updated by admin in accordance with the needs and real data for data to be more up to date and quite helpful for people or investors who want to develop the potential and quite helpful in planning activities and distribution of commodities, the potential.
4. With the presentation of spatial data by mapping its non-spatial data in this system, making each other better integrated data.

4.2 Recommendations

1. Adding entity or other tables that support other than the entity that is available in this system will make the system more efficient.

2. Because of the limited tools that are owned by me in building a geographic information system is expected for the future in terms of map registration made more than four reference point, as well as using GPS to find the point with a jump directly into the field to the value of the error can be more accurate coordinates in minimal.
3. In the spatial data processing is expected to be further improved where the admin can directly manipulate the spatial data not only point data alone.

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