DENSITY DYNAMICS USING GIS

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ABSTRACT

The density calculation in now-a-days is so difficult and it's a time taking process. The Density,Location,Frequency (DLF) algorithm and the per square-meter area calculation gives the approximation results of the density in a region. The most important of the representation of the map and the changes in the area of region is being approximated with the Fractal-Calculations (FC) and the representation is done on Geo-Visualization.

Keywords: DLF, FC, Geo-Visualization.

INTRODUCTION

The govternment uses the old fashion of calculation of density as recruiting some people and as per rules send to area's to find the density in that area. Now in this paper, the density can be calculated with the per square-meter area calculation.

The change in the density results in the change in the area and finally representation changes it's a continuous time stamps.

EXISTING SYSTEM

In the existing system, the RVD algorithm and the Land-Usage algorithm is used separately. Along with these, the map representation is also not specified with the exact representation.

Raster-Vector-Division(RVD) : This algorithm is based on the vector places and its location and density. The result of this algorithm is revised and it can't be used as the reference data anywhere.

LAND-USAGE (LU) : In this algorithm, the representation of the land is specified but there is no continuous time stamps and the algorithm flexibility. This algorithm has to be checked manually and it's a huge hectic process and man-power. The collection of information is huge and the query analysis is difficult.

PROPOSED SYSTEM:-

In proposed system, we are going to draw the output approximation of the density. The propsed system takes the data from the Government sources or the sample data of the

user's own interst and perform the below proposed operations using algorithms and finally obtain the approximated result.

DRAWBACKS:-

1. No continuous time-stamp.
2. No raster representation.
3. In-sufficient data regarding the modules.

PROPOSED SYSTEM ALGORITHM:-

The project consists of algorithms:

DLF scoring algorithm: In this algorithm, it checks for density and frequently.

1. In this algorithm, D specifies Density.
2. Loop through each unique location L (latitude and longitude) based on geographic decision (such as address, mobile number, state, District).
   a) For each location L, compute average frequency of the particular attribute data is noted with comparision of threshold value and total "D" count.
   b) Calculation of location level summary scores for the frequency.

   -The L is computed as the rank in ascending.
3. Plot the score in the chart with scores on the x-axis locations on y.

Cells Automation [CA]: The CA is basically defined on raster cell space and exhibits rich behaviour.

Characteristics:

1. Grid/Raster space for specifying where the density is? And how much it is occupied.
2. The ser of states which forms grid cells.
3. This specifies cells by depending on the neighbouring cells to know as it was the correct location or not.
4. It acts in discrete time stamps.

The CA is used to specify the exact raster's. The set of transition states as r,Aj,Ij,Zj,Nj,IEj.

It is defined as Pj=r*Aj*Ij*Zj*Nj+IEj.

Where IEj>0 => current status.

IEj=0 => not a current status.

Modules

1. Gathering of the information
2. calculation on the sample data
3. Factors causing the density growth
4. Information about the co-ordinate systems
5. Gathering of Shapefiles
6. Geo-Referencing Raster Data
7. Creation of own shapefiles.
8. Digitizing the rasters & attributes
9. Adding attribute data to vectors
10. Query analysis
11. screen turnout of query results

Module Descriptions:-

1. Gathering of information

The information regarding the project is gathered and make in such a way that it shows the order of the project and in between if any information we are going to add is also specified in this module.

2. Calculation of sample data

In this module, the sample data from the above module is being taken and apply on the prior software or coding part which we had collected and tries to get the output results.

Architechture Diagram:

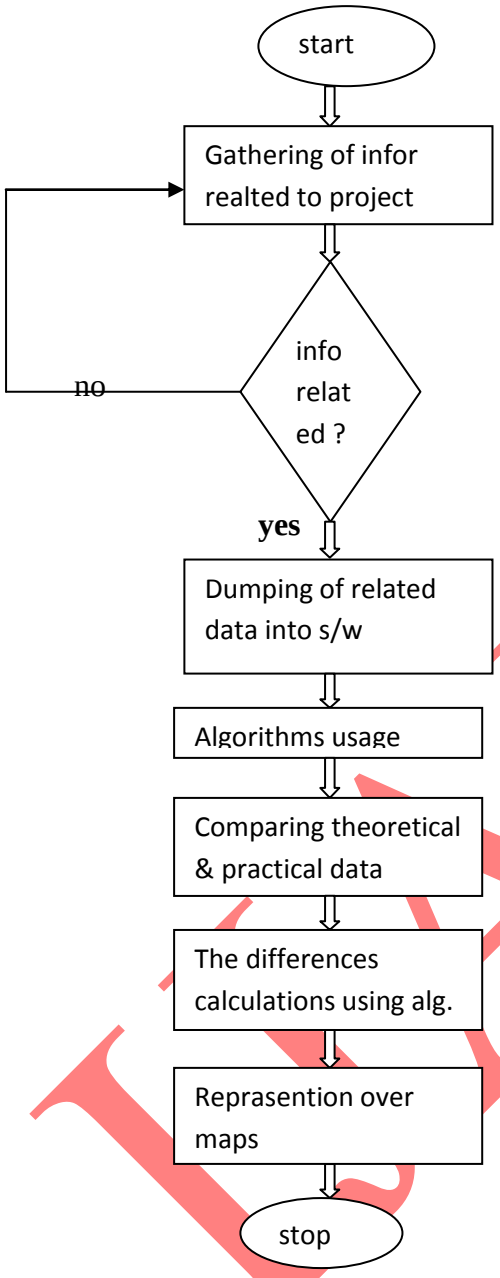

Fig 1: Architecture Diagram

Graph Reprasentation:

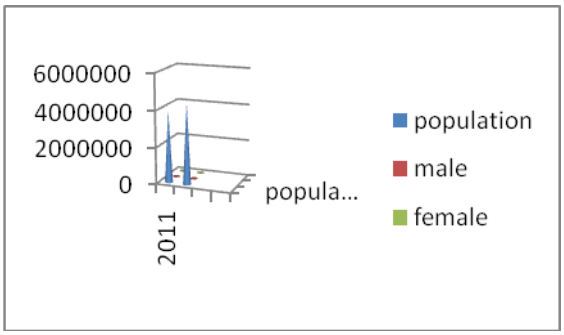

Fig 2: Graphs

3. Factors causing density growth

In this module ,we specify the factors in growth of density

a) rate of birth
b) rate of death
c) rate of migration

4. Information about the co-ordinate systems

In this Module, the information regarding the co-ordinate system as gathered. The co-ordinate system are gathered in the below terms:

a) Longitude
b) Latitude
c) Easting
d) Northing
e) UTM zone

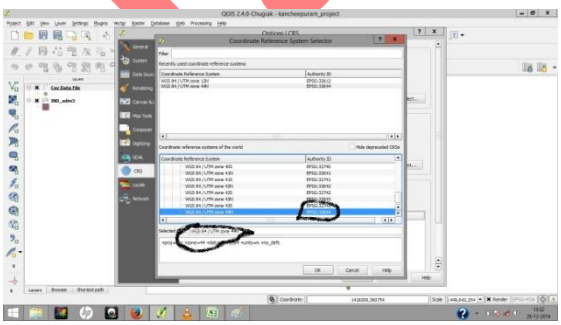

Fig 3: UTM Zones

5. Gathering of shape file

In this module,the information of the shape files of the place which we are going to apply our project and the sample data are collected.

6. Geo-Referencing Raster data

Based on the above information we plot the Easting and Northing and the plotted co-ordinates are not equal to its topo-maps and therefore we do the Geo-Referencing of those co-ordinates and topo-map and finally we generate a geo-referenced image.

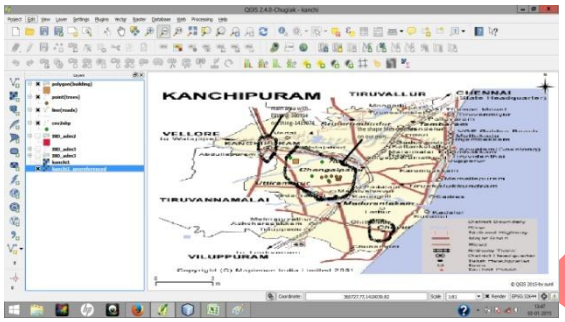

Fig 4: Geo-Referencing

7. Creation of own shapefiles

In this module, the shapefiles are created on our own as:

a) Lines
b) Points
c) Polygon
d) Plotting co-ordinates
e) Numeric digitizing

And these are files are saved with an extension .SHP and these are important files in the whole project.

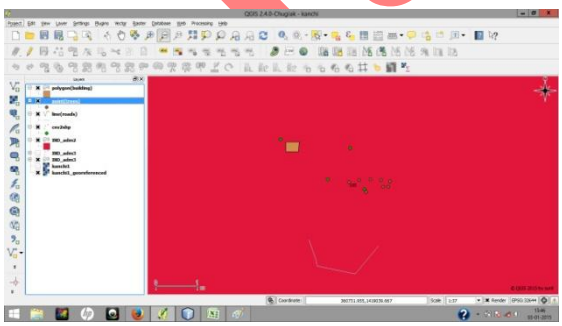

Fig 5: Shape files creation

8. Digitizing the rasters & attributes

In this module, the conversion of an analogue image/map into a digital format usable by a computer.

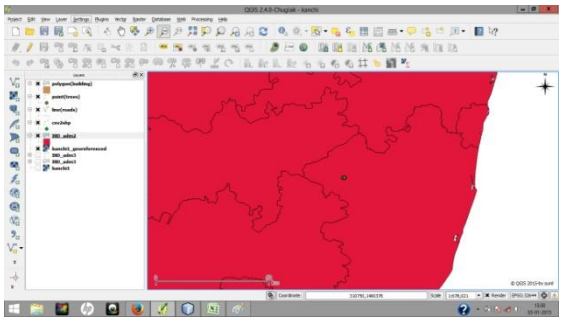

Fig 6: Raster displaying

9. Adding attribute data to vectors

In this module, the attributes which are currently present in this attribute table can be append/deleted. The addition of attribute data causes the more creation of shape files in the project.

10. Query analysis

In this module, the created shape files information are selected with the attribute table and when they are clicked on the primary column attribute data, it will display the particular shapefile on the map.

11. Screen turnout of query results

In this module, the screen printouts are being done using the software.

a) Views
b) Decorations
c) Copyrights
d) North arrows
e) Scale representation
f) Layout
g) Maps

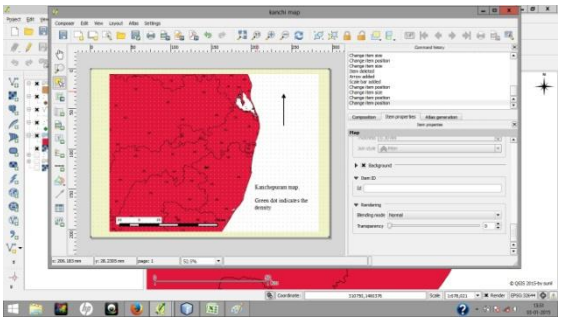

Fig 7: Map reprasentation

Feature work & related:

This can be extended to further areas by plotting the points over different areas simultaneously. The time stamps need to check continuously automatically.

CONCLUSION

In this paper we implemented the approximation and the representation of the density regarding the information.

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