



## **Universal Geo-database Connector Interface Component (UG-CIC)**

For Virtual Web-base GIS Server Essential For Real  
Estate Industry Uses

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## Motivation

- Beside High-Tech companies, Real Estate companies conquer the superior wealth of the market.
- These companies stocks are real estates such like buildings, cadastral parcels etc...
- These stocks are not ordinary and differ from other kinds of stocks naturally.
- One of the main differences is that the real estate may survive forever, especially if it is land parcel.
- Pricing the real estate is not an ordinary task.
- It is treated by an individual science called: *Real estate Assessment*.



## Motivation

- Real Estate company could execute several strategic movements such as: selling, buying, renting, building etc, for maximizing their profits from their stocks.
- For that two main questions should be asked:
  - WHAT?
  - WHEN?
- Answering these two questions need several kinds of data which most of them are related to the position of other spatial objects in relative to the Real Estate properties (stocks) as well as other numerical or alpha numerical data.
- Spatial objects may be buildings, roads etc...





## Motivation

- The environment is dynamic. Thus, tracking spatial data is an obligate task that enables Real Estate companies answering the ultimate questions.
- GIS software is widely use for several fields.
- GIS is designed to deal with geographical data.
- Its main special task is to integrate geographical data with numerical or alpha numerical data that could be related to the spatial objects.



GIS shall be use as an ideal system for assisting Real Estate companies maximizing their profits



## Motivation

- Using GIS for this purpose is not a simple task.
- It involves several difficulties:
  - Data existence formats.
  - Data accessibility.
  - Data updatability.

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## Difficulties

- For understanding the difficulties of implementing such a **multi-sources web-base GIS** we should identifying **data** that could be **useful** for executing market tasks design for maximizing the profits.
- Data could be divided into two parts:
  - A. Data that could be identified using GIS graphical data layers maps**
  - B. Alpha numeric data**



## Difficulties (Useful Data)

### **A. Data that could be identified using GIS graphical data layers maps**

- 1. The location of the property:** the town (or the village) which the property is related to, the distance from other spatial entities such as roads, governmental or municipal buildings, commercial and industrial entities etc.
- 2. Deposit Town Planning plans.**
- 3. Licensed Town planning plans.**
- 4. Building and development projects.**
- 5. Building licenses.**





## Difficulties (Useful Data)

### B. Alpha numeric data:

1. **Property mortgages.**
2. **The quality of the property workmanship:** especially the building construction, performance and the quality of the material in the building. If the property is an agricultural parcel, they look at the quality of the cultivations in it etc...
3. **The Juridical Registration Status.**  
For example: Is the property settled legally or not?!  
Has the property only one or several owners?



## Difficulties (Useful Data)

4. **The Cadastral Status:** defining the parcels according to the digital cadastre registration or analogical cadastre.
5. **Neighbor Real Estate transactions and mortgages:** For example: to whom the neighbor property had been sold or leased or mortgaged, how much, how, etc...
6. **Announcements for selling, leasing or renting of neighbor real estate properties.**
7. **Taxation values.**
8. **Information about the inhabitants of the community:** such as age, religion etc...
9. **The health quality of real estate environment:** such as degree of contamination.





## Difficulties

- GIS software could present all these data by several kinds of **Thematic Maps**: Alpha numeric data could be presented by symbolization, Isarithmic, Choropleth maps or even by tables beside thematic maps.
- The main problem is :
  - Data existence **formats**.
  - Data **accessibility**.
  - Data **updatability**.
- **Data formats**. Example: town planning maps/building licenses are not designed in formal accepted GIS data layer formats. Town planning committees ask for CAD format only (at least in Israel).



## Difficulties

- **Data accessibility:**
  - In order to get the final legal status of the real estate the civilian must go physically to the committee which the real estate belong to. The accessibility of the material in the websites of the governmental town planning committees is not existed and if it is existed in some committees it is not completed.
  - Civilian has no access to the taxation authorities who own the last transactions details which may affect their own real estate price evaluation.
  - Most of the second useful data part is not accessible
- **Data updatability:**
  - Even if there are some town and planning committees that have GIS portal in the www, they do not undertake that GIS data are up-to-date.





## Difficulties

- **Finally:** Real Estate companies own tabular data that may be useful for executing the most appropriate market movements for it. Usually these data are saved in alpha numeric formats in the companies' own records.
- Examples:

Party ID #	Legal Cadastral area [sqm]	Existed Area [sqm]	Use Specifications as Town Planning Plans	Building Percentage [%]	Maximum Building Height [m]	Information Time
1	4013	3978	Industrial	450%	39	14/03/1992
2	1215	1256	dwelling	160%	13	29/11/1996
3	2800	28104	agricultural	20%	8	02/08/1998
..	..	..	..	..	..	..



## Difficulties

Party ID #	Building Percentage [%]	Remaining Building Percentage [%]	Building Height [m]	Remaining Height [m]	Own Used/Leasing	Use specifications as Town Planning Plans
1	150%	300%	12	27	Leasing	Industrial
2	0%	160%	0	16	Own	dwelling
3	5%	15%	4	4	Leasing	agricultural
..	..	..	..	..	..	..

Party ID #	Acquisition Cost [S]	Date of Acquisition	1 S in NIS	Integrated Index Val.
1	35000	14/03/1992	2.384	99.12
2	180000	29/11/1996	3.253	101.56
3	1150000	02/08/1998	3.650	101.99
..	..	..	..	..





## Difficulties

As a **conclusion** : In order to answer the question for **What** movements are required for maximize the profits of the Real Estate company as well as **When**

The ideal system should be

Dynamic multi-sources web-base Virtual GIS that could deal with alpha numeric tabular data existed in Real Estate company own records

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## GIS Solution Implementation Issues

Beating the difficulties we counted needs the assistance of the governmental authorities by several steps, the most significant may be:

- Setting a formal GIS data format for the town planning plans.
- Setting an alpha numeric juridical data formats for registration of title and legal information.
- Building up an automatic national Real Estate web-base planning updating system.
- Building up an automatic Real Estate web-base cadastral information system.
- Enrichment the central Bureau of Statistic to include useful data for Real Estate and make it public domain in defined specific format.
- Building up an automat Transactions Information web base





## GIS

### Solution Implementation Issues

- These systems seem to be unresolved in the near future.
- Although there are several governmental GIS portals they are not adequate for establishing the desired clever GIS system useful for Real Estate Company also seems to be implementable



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Such an ideal GIS system useful for Real Estate Company also seems to be implementable



## “RADIUS”

### as a Possible Solution

- As an alternative to the ultimate clever GIS system, **ZAID ORNIV** company L.T.D specialists in Real Estate assessment, Surveying, Geo-information and GIS has developed a web-base GIS component called “**RADIUS**”.
- “**RADIUS**” uses the Microsoft Internet Information Server (IIS) for applying spatial GIS queries.
- Real Estate Company can open a direct connection between their alpha numeric database and **ZAID ORNIV** geographical zoning and town planning GIS database.
- **ZAID ORNIV** database has been established since many years and it includes most of useful data layers





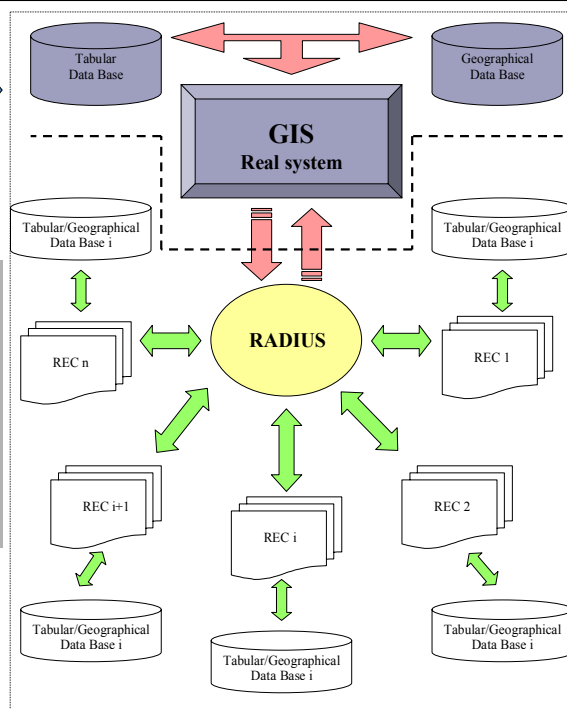
## “RADIUS” as a Possible Solution

- “RADIUS” play as a connector through the web. Real Estate company could have an access for “RADIUS”:
  - Sending parameters through the web-address in order to get the desired map.
  - Real Estate company could also send alpha numeric data saved in its records for executing specific maps useful for her market movements decision.

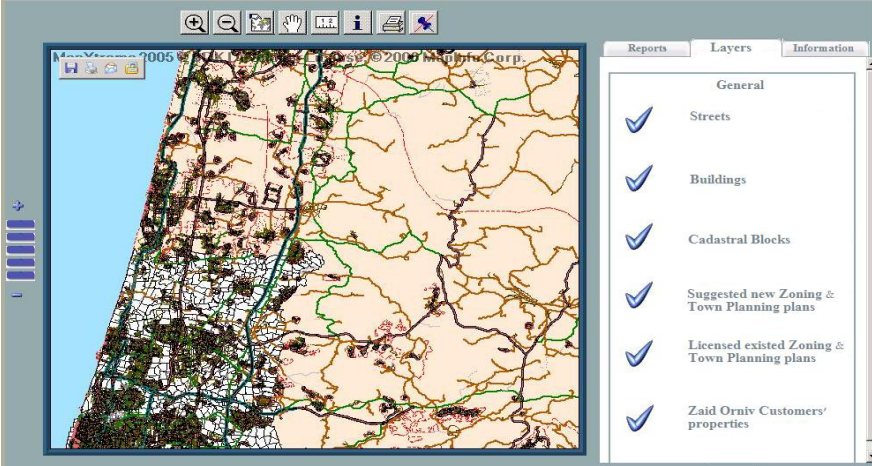


## “RADIUS”

It could be  
uses as Virtual  
web-base GIS  
Without  
maintaining a  
database



Screen Shot from the Virtual Web-Base GIS that is based on **RADIUS**

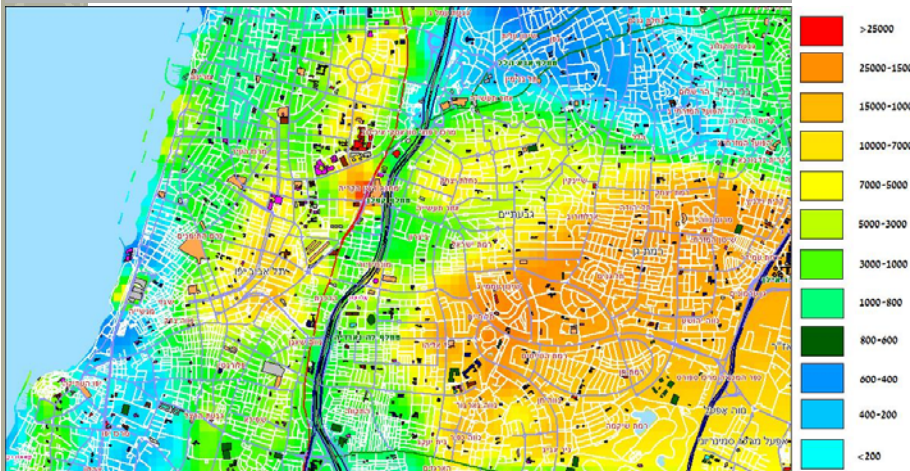


Common geographical data layers map could be developed:



By means of **RADIUS**

Isarithmic map of pricing Range of Real Estate value in units of \$1000 in the centre of Israel, GUSH DAN



Using special professional function developed by **ZAID ORNIV**



By means of **RADIUS**



## “RADIUS” as a Possible Solution



- The linkage between Real Estate stock and ZAID ORNIV data base is one of:
  - Block and Parcel.
  - Exact Address
- Actually instead of using and dealing local GIS software, “RADIUS” provides virtual GIS environment that includes also professional functions as well as up-to-dated database both useful for Real Estate companies.

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## Conclusions



- Highlighting the difficulties in using real GIS for Real Estate companies.
- Call for governmental development of special and specific systems and setting data formats.
- These systems will contribute in world wide globalization process.
- As well as they will lead to a real breakthrough in the real estate field transactions and in the daily life if civilians.





## Conclusions

### Finally:

- The **RADIUS** virtual GIS web-base component by the Zaid Orniv Company has been developed in order to make the **connection** between **USERS** tabular data and Zaid Orniv GIS database.
- This contains a part of the useful data for assessments of the real estate properties
- it can be used for other GIS purposes especially when users have no geographical data layer and need to develop their own GIS system without having GIS local software.
- It has been working successfully several years...



Thank you about your kind listening and  
hoping to see you next year in EILAT- ISRAEL



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