

Real Estate Cost Estimation Using Data Mining Techniques

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Abstract:

Most of the countries do not full fill the international evaluation standard, so the actual cost variation of the property is a problem. Some where they have a system to evaluate but that is not up to secure mark. People play with the market values among the stakeholders according to their own benefits. Most of the cases the information is stated is not taken after the research and not totally unbiased. This research helps us to find estimated values. All the properties categories having separated values and the ups and downs must be related to use and previous values and linked with the development of those areas. The most common technique that will be used is outlier, the unexpected transitions occurs the very large and small values. The table of evaluation is maintained in most of countries to estimate the minimum property values related different categories i.e. commercial, industrial, residential, and agricultural, on the road, off the road and link road. The above mentioned categories are further divided into sub-categories; our main focus is on the residential apartments. There will be Different levels according to their look, conditions and facilities that are provided in these apartments.

Keywords

Data mining, real estate cost estimation

1. Introduction

The Real Estate properties are very attractive option for long and safe investment especially for a common person. It's hard to find estimated cost up to national level as well as internationally. Usually the value of the properties is not increased rapidly. However, it's observed that the price of the property may not increase all the times many factors are involved which maintains the ups and downs in the price of the property.[3]

Different mechanisms are used in different countries to maintain the price of properties and to save the inventors investment from the brokers that play monopolies. Due to poor management, lake of interest of the Governments in real estate brokers has fully control on the prices. To estimate the cost of real estate we need to develop a strong mechanism for that purpose we need a skilled persons. Here we will discuss the cost estimation system in Pakistan. The research and development R&D department is not updated due to which it's not too much effective as it must be to increase the tax collection. In Pakistan conventional system needs to improve or update to meet the current and upcoming challenges.[4]

To estimate the price of the real estate we need an assessor that will be fully trained and skilled government employee. The assessor has to play middle man's role to maintain the piece and will guide both of the parties, the seller and the buyers.

The real estate market value will be determined by the assessor and the expected influences into consideration. We need to estimate the price of the real estate for different purposes like attestation, regulate the loan, different types of deeds, division among the partners, the total stock of a company and some others.[5]

For all above stated reasons the assessor will be highly skilled, professional, experienced and most important is ethical person. For the living Apartments cost estimation the assessor must be civil engineer and having computer operational knowledge. A software will be designed that will help the assessor to estimate the expected values of the property. This software enables the buyer and the seller to have full access to related data about the property, so that they can compare those values with other interested properties.

This will help to both of the parties to get most suitable deed according to their needs and wishes related to constrictions. The civil engineer is the people that will assess the constriction price at the same time the assessor have the responsibility of complete documentation to save buyer and seller from the fraud.

The constriction price estimation we will use image processing system that will estimate the price from snaps of that apartment. For all the technical issues the assessor will be responsible. [7]

2. Related Work:

Now we are going to provide the overall a sketch of the related work that will focus the real estate cost estimation automated method. Different methods and algorithms are used and the machine learning methods with image processing algorithms that determine the level of the living apartments. In Pakistan the table of evaluation is maintained from the district government that is updated after every one year.

The table of evaluation contain the minimum price of each property its observed that most of the time the market

value of real estate is higher than the given value is the table of evaluation. District government follows a very poor and old mechanism for the evaluation that is not up to secure mark. It's very strange to know that in Pakistan no method for living apartments cost evaluation. Living apartment's price is fully controlled by the brokers.

The buyer does not need any certificate from any govt. agency that certified about the standards physical conditions and the life of that building. [8]

In developed countries a living standards is maintained by their building departments that check different parameters like electricity fire alarm system gas availability television cable and phone line availability and most important thing is security. [5]

3. Auto Valuation Techniques:

The property cost estimation is very important in several aspects. The most important role is in tax collection and to detect fraud that is most common in most of the countries. Many gangs are active in many countries that play with the price of the property to save their tax amounts. Brokers get property at very low rate and sell it very high rate because in table of evaluation there is minimum price is mentioned that is totally different from market value. The evaluation is required for sale, purchase, and tax collection, transfer of property, property division among the stake holders, inheritance and investment of the common person. Here we are going to mention a method of finding automatic property evaluation that will be closed to market value. All over the Pakistan the value of property mentioned in government defined table of evaluation is much less than actual market value. The minimum property value is mentioned. The goal of automated valuation methods is to automatically estimate the market value of a house based on its available information. [9]

On the base of automated evaluation system and international slandered for price estimation to access value of the property that will be closed to actual market value. The detailed survey for price estimation that is given in there are three methods are discussed that are "comparable", "neighbor regression" and "past value".

In 1st method property is evaluated through comparison with same type of property at same location using image processing algorithms. Property is divided in different levels and for estimation snaps are taken that is given into the algorithm that compared and estimates the value of that property. Using in this method we can just evaluate the construction value. This method is totally failed about the location as we know location of the building plays very important role.

To solve this problem each property will be linked with GPS and it will be online application. [10]

Second method is neighbor regression method in which property value is estimated with the neighbor property. Using this method we can just evaluate the price based on the location, because the construction may be different from his neighbors. This method is best for apartments that are at same location and same type and same floor. [2] It's noted that purchasing price is mostly different from market value because most of the time value is increased for needy persons and the same time the value is decreased when a needy person is want to sell his property. This technique is used for money laundering and frauds.

4. Methodology:

In our method the property will be divided into seven different levels that levels will be pre-defined. To estimate the value image processing techniques will use that determined the luxurious apartments. All the houses snaps and the prices control system all the problems that are discussed in our paper.

Designing of the apartments location and the current condition will be checked and estimated market value is calculated. Different seven levels figure no. 1 is given below that are pre-defined levels after matching the image this will indicate the property level and expected value.

In future these levels can be increased up to secure mark and linked with GPS system. [6]

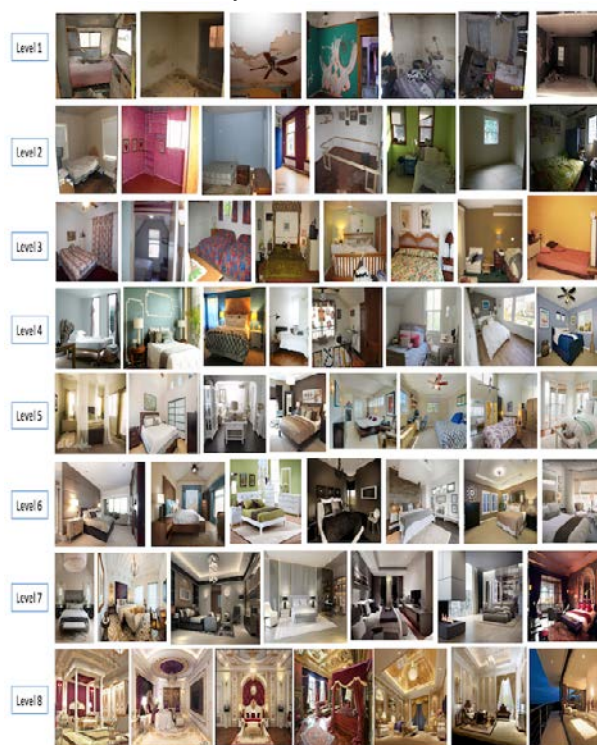


Figure 1 Levels of Design

5. A proposed system to estimate the Price:

We collected data of different luxury level in the form of images, datasets and photos. A dense net is used for the classification of the estate photos. By using some trained persons, the images of one house are compared with the images that are already stored in the dataset which compares these new images with the already stored images just to tell the price of the house. If there is no photo exists in the data set we assumed as the average value of the other things of that room. Then we looked the Meta data of the house which consist of different properties of the house such as price of the house and volume or the size of the house.

We have used average price and to give value to the metadata vector, we used standard deviation. Z-scoring for normalization is also calculated using this mathematical method by subtracting average value from the value of the each component and then divide it with its SD.

By using this method we can calculate the price of the house with its other valuable this more easily and effectively.

We have also trained the network using recently bought houses to make the truth table for the algorithm. In the first step we have also classify the images according to the type of room. Images are also classified according to their luxuriant level. We have also used metadata and kernel support to find the actual price of the house.

6. Conclusion:

We have investigated the impact of the value of some of the personal properties of the countrymen. A huge amount of data is collected from different sources just to match the existing dataset with it. This huge dataset consist of several hundred photos, including interior and exterior photos of the houses. We have also developed a network That distinguishes the pictures or images according to their level of comfortableness and luxuriant. The proposed network is able to compare the value of the house to its photos and other datasets.

An algorithm is used to estimate the price of a house according to the dataset and images. This field has lot of research gaps but it is not under the eyes of the researchers. Some of the future directions are: examine the effect of furniture modes and styles at the luxury level as well as on the price of the house. Explain the different photo patterns from the decoration point of view, among others.

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