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# Information Supply and Exchange Eco-System-AEC

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***Abstract:*** **This project is about developing a marketplace for the building materials in the AEC (Architecture, Engineering and Construction) segment with the unique and very innovative solution for end customers who are really having lot of pain points in choosing what they want in today's lifestyle. Our focus is to make this whole ecosystem seamless, user friendly and easy to use. It is about developing an automated system for supply and information Exchange for Architects, Providers, Dealers and end users which with the unique and most innovative way. It facilitates the whole ecosystem communicate to each other targeted user groups. This would reduce lot of pain points and make user's life lot more easy, seamless and adoptable. It has got multiple faces which are Pluggable Interface, Augmented Reality, Marketplace and storage Management etc.**

***Keywords:*** **AEC, Market Place, Augmented Reality, Pluggable Interface.**

## I. INTRODUCTION

In the modern world of technology, people don't have time to visit stores and explore things before purchasing things. When constructing a building people often have their common or minimum set of requirement to which they have to travel all the way searching things which takes lots of time. This is reduced by making people search their products from their homes with ease.

This project is about developing an automated system for supply and information Exchange for Architects, Providers, Dealers and end users which with unique and most innovative way. It facilitates the whole ecosystem communicate to each other targeted user groups. This would reduce lot of pain points and make user's life lot more easy, seamless and adoptable. The product has got multiple faces which are Pluggable Interface, Marketplace and storage management.

The marketplace is the easy-to-use, user friendly environment which helps the user to browse across the products and buy them according to their need. It is the platform where the user can view, compare, and place order for product. This is a shift that carries implications at all levels of your AEC (Architecture, Engineering, and Construction) business — from the business processes that you design to boost your productivity, to the tools you provide your changing stakeholders. Historically, companies have looked primarily at their information and making use of technology to automate processes in order to facilitate growth. But today, people-centric tools and other technologies are driving the changes that are revolutionizing the AEC world. Programmatic access provides the ability to imitate through code, any interaction and can experience traditional user interactions.

It is a process involving the generation and management of digital representations of physical and functional characteristics of places. Building information models (BIMs) are files (often but not always in proprietary formats and containing proprietary data) which can be exchanged or networked to support decision-making about a place.

## II. SYSTEM OVERVIEW

The application primarily begins from the administration of the system logs in to the system and the system is kept ready. The administrator is the seller/provider who sells the products on the marketplace. The details about the products

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available on the marketplace will be displayed on the website. In order for storing the details about the products available in the marketplace will be stored in No SQL database known as MongoDB. The MongoDB is a NoSQL database. In order for the transactional details, we are using the SQL database that is the MySQL database.

The end user logs in to the marketplace with his user credentials, now he can browse for his products, compare among the products, add products to the wish list, the visitor is the one who will be just viewing the marketplace. The details about the user is also stored in the database for enhancing the user experience. This information is basically the personal information which helps user experience in a great way.

The dealer/seller is the agent who has products to sell for the end users, he can add the products to his store and also can launch his own store on the marketplace, he can add the products which are already available on the marketplace and he can also add custom products into his store which are not part of the marketplace.

The facility that has been provided for the end user is the Revit plugin which helps him to place objects on the architectural plan and see things come real. Revit provides facility for the user to see the architectural plan to be viewed realistic design. The Revit facilitates the user to drag and drop a object into Revit window and makes it possible for the user to right away see and verify whether the object fits in the architectural plan.

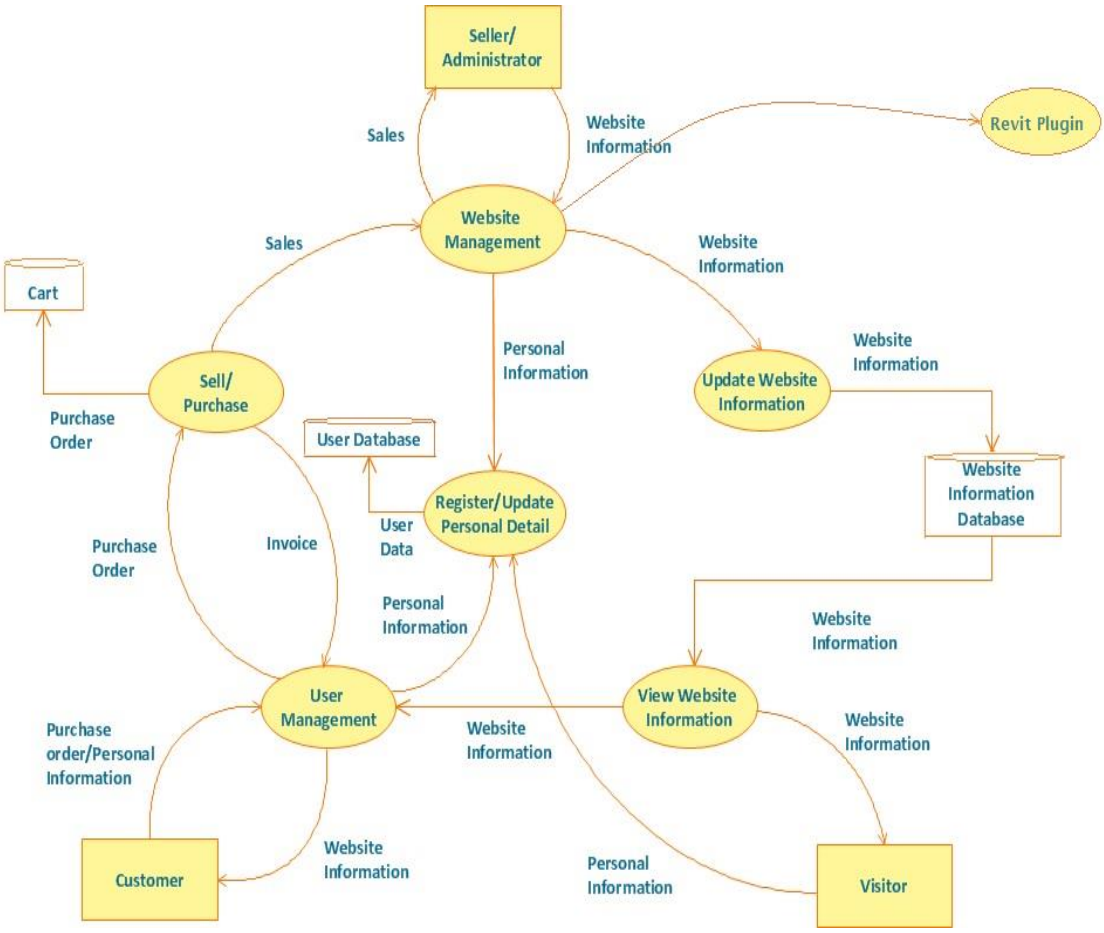


**Figure: System workflow**

## III. WORKING OF THE SYSTEMS

The interaction between the system entities are described here. The behaviour and the internal and external factors which influence the requirement of the system can be visualised here. The actors of the system are the customer/end users, dealer/provider, the payment agent and the Revit plugin. The end user can browse through the products in the marketplace and he has got new facility to check for placing the object in his architectural design. The Revit plugin facilitates the user to place an object in his architectural plan and see whether the object is suitable to be placed in plan.

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When system analyses to combine functionalities, it prepares use cases and identifies the actors available in the system The internal and external factors can be known as actors. Along with which also consists their relationship. This is used to configure the system or sub system of an application.

- Gathering requirements of the system
- To get the overall view of the application from outside
- Internal and external factors identification of the system
- To demonstrate the interactions between actors

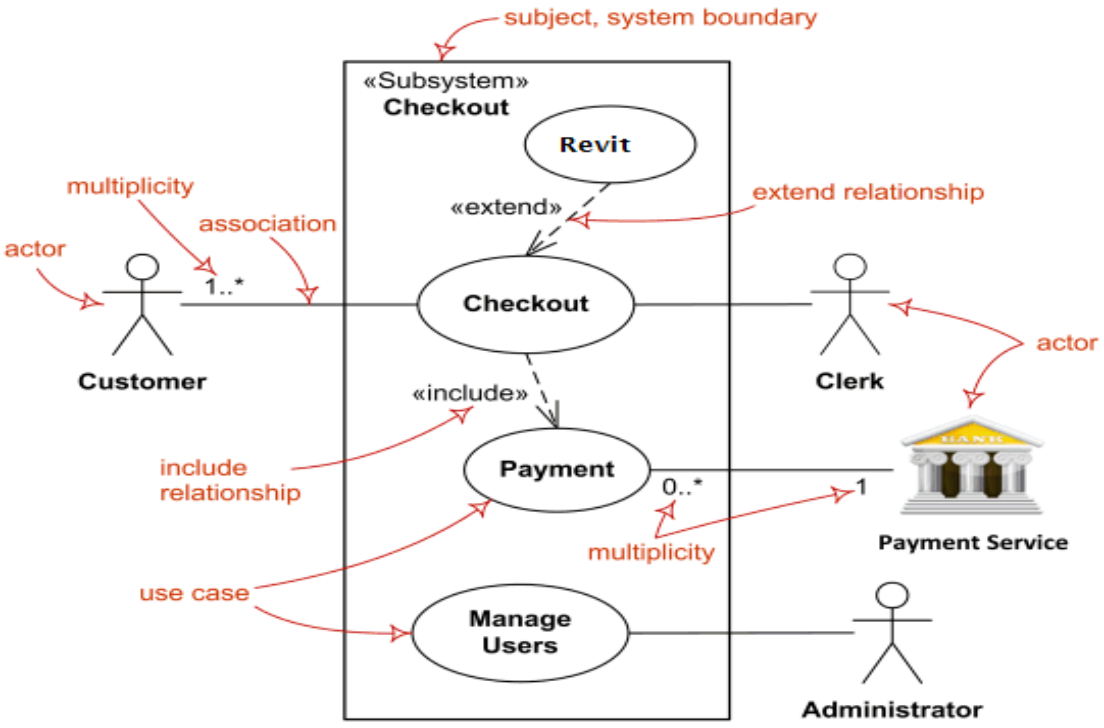


**Figure 2: Use case diagram**

## IV. SOFTWARE UTILITIES

***Mongo Database:***

Mongo DB may be a powerful, flexible, and ascendible knowledge store. It combines the power to Scale out with several of the foremost helpful options of relative databases, appreciate secondary indexes, vary queries, and sorting. MongoDB is additionally improbably featureful it's tons of helpful options appreciate constitutional support for Map Reduce style aggregation and geospatial indexes. There is no purpose in making an excellent technology if it's not possible to figure with, so a lot of effort has been place into creating MongoDB simple to urge started with and a pleasure to use. MongoDB contains a developer-friendly knowledge model, administrator-friendly configuration choices, and natural-feeling language arthropod genus conferred by drivers and therefore the information shell. MongoDB tries to urge out of your means, lease you program rather than worrying about storing knowledge

Some of the Features of Mango DB

- Indexing: MongoDB supports generic secondary indexes, permitting a spread of quick queries, and provides distinctive, compound, and geospatial assortment capabilities furthermore.
- Stored JavaScript:Instead of stored procedures, developers will store and use JavaScript functions and values on the server facet.
- Aggregation:MongoDB supports Map Reduce and other aggregation tools.

- Fixed-size collections:Capped collections are fixed in size and are useful for certain types of data, such as logs.
- File storage:MongoDB supports an easy-to-use protocol for storing large files and file metadata.

***Revit:***

Revit will be used as a awfully powerful collaboration tool between totally different disciplines within the building style sphere. The various disciplines that use Revit approach the program from distinctive views. Every of those views are targeted on finishing that discipline's task. Firms that adopt the code first examine the prevailing work flow method to see if such associate in nursing elaborate collaboration tool is needed. The Revit work setting permits users to control whole buildings or assemblies (in the project environment) or individual 3D shapes (in the family editor environment). Modeling tools will be used with pre-made solid objects or foreign geometric models.

Revit facilitates the developers to build custom plug-in in their software. With the help of these plug-ins, one can use it to drag and drop objects to check for their plan/design. The plug-in that is used in the Revit helps the end user/customer for checking whether the object can be placed properly on the architectural plan or not. The user drag and drops an object into the Revit window, once placed, Revit tells the user whether it is suitable to be placed in the prescribed plan.

## V. CONCLUSION AND FUTURE ENHANCEMENT

With the help of this marketplace, people can reduce their travel time and buy the products of their wish with ease that too sitting at home or work place. By making use of the Revit tool, one can check out to see an object is suitable to fit in their architectural plan, this makes helps the users to see things come real well before constructing a building.

As part of future enhancement, the system can be extended to work with various databases. The design can be extended to make it more versatile and user friendly, as it would be used by everyone and able to understand it easily can work for long run.

## ACKNOWLEDGEMENT

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