

I BUILD

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Abstract : iBuild provides omni-channel solution that facilitates online jobs in marketplace between contractors and workers for different types of work related to construction and renovation of their convenient task which may include anything from architectural construction to small maintenance work.

iBuild mobile app enables customers, workers, contractors and lenders to interact with each other and search for the ideal vendor, thus saving time and money. The system utilizes the powerful database management, data retrieval and data manipulation. iBuild is useful for saving valuable time and it also reduces the huge paperwork. It is also useful for increasing the employment rate in the under developed countries like Kenya, Tanzania etc. It reduces human effort in many circumstances.

Keywords : Omni channel, Angular, Ionic, Job marketplace, I Build.

I. INTRODUCTION

iBuild provides a platform which facilitates virtual jobs in Civil and Construction marketplace that moreover generates an easy and less cumbersome link between the Customers, Contractors, Lenders and Workers. Additionally, this application provides multilingual support on multiple platforms comprised of Android, Web and iOS. To sum it up all, iBuild has InApp chat module and Wallet service integrated which makes the workflow smooth and free flowing.

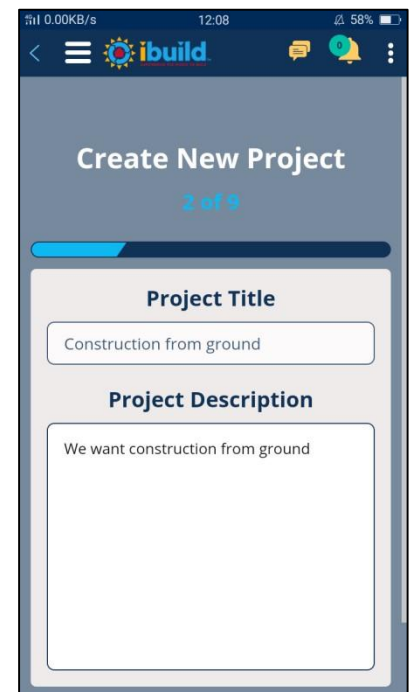
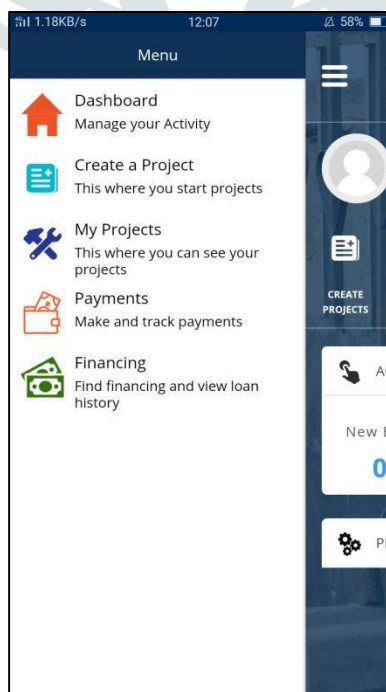
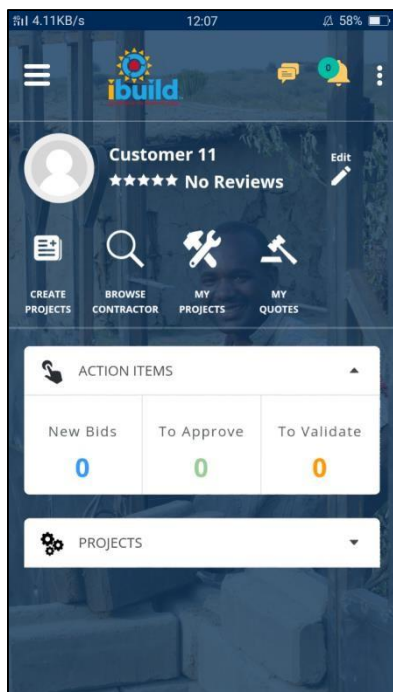
iBuild generates employment scope for under developed countries like Kenya. Job creation and customer satisfaction is main agenda of this project. Online bid facility is provided for the pricing precision. Increased reachability of jobs for Workers, Contractors and Lender via this platform.

Wallet service is integrated which can be used by redirecting bank account so, there is no need to do cash payment. InApp User communication platform will help to improve work efficiency and reduce communication gap. Overall it will generate high job opportunities which will play an important role in country development.

iBuild has been built using Angular JS and Ionic Framework; and integrated on IBM Mobile First Platform. Java is used for the payment gateway integration and MySQL for Database.

II. PROJECT MODULES

- 1. Customer :** Customer can apply for project and give opportunity to contractor for bidding. Among multiple request customer can choose the best option provided by contractor. Here, project is created with detailed description. In each and every phase work done is approved by customer. Also, customer can apply for loan with some necessary documents.



1.1. Create Project: Customer can create project on basis of requirements and detailed description. Different inputs are provided by user like Type of project, Project name, Project Description, Material references, Photos and file related to work, Priority of work, Due dates, Location of work.

1.2. Browse Contractor: Customer can select contractor and can add it to favorites. Also, one can apply different types of filter on contractor based on rating, work type, skills.

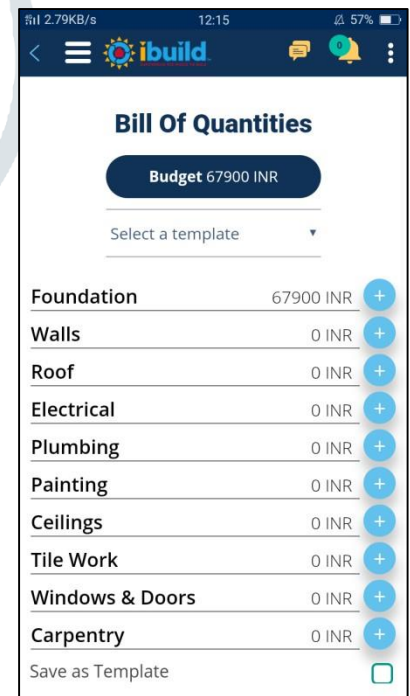
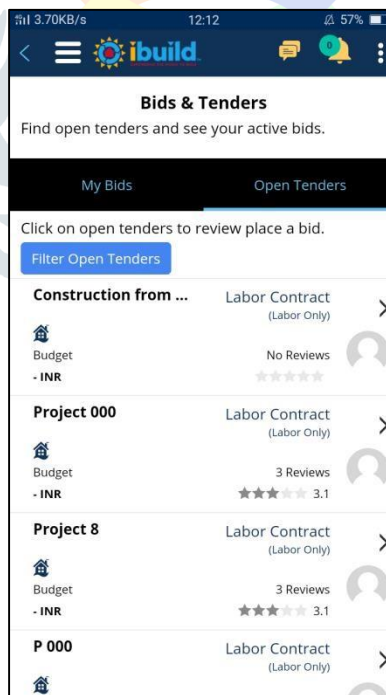
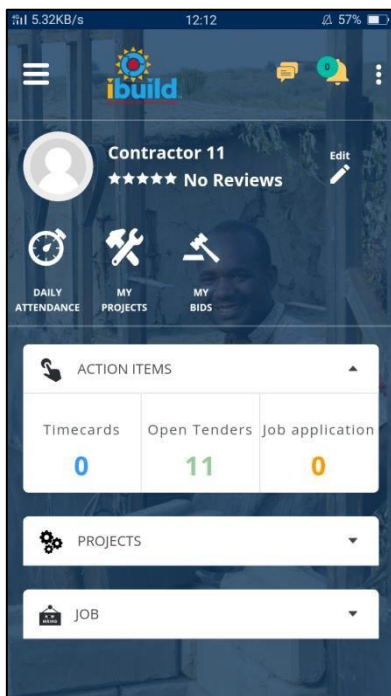
1.3. My Projects: Customer can see the projects which are out for quote, project in draft, project in progress and completed project by contractor. When particular contractor wins the bid and provide the milestone to customer the project will be saved in “In progress” state. After completion and full payment, the project will be moved to completed state. Customer can see all the projects and current state of the project.

1.4. My Quotes: Customer can see the projects out for quotes.

1.5. Action Items: After milestone generation of work by contractor will be sent to customer in “To Approve” phase. After confirmation of customer, contractor can start work. After completion of work contractor send work to customer which is displayed in “To validate” phase. Now, Customer will pay to contractor using payment module.

1.6. User Menu Drawer: Multiple options are available here given below.

- Dashboard: It redirects user to the dashboard page.
 - Messages: It provide the chat access to user.
 - Payment: After Completion of work customer can pay decided amount to contractor in installment. Worker can be paid by contractor. User payment is available through bank and other option is inbuilt wallet. 1% tax charges of total payment will be paid to “iBuild”.
 - Financing: Loan will be provided to user by Mahindra Finance. User can apply for loan through some required documents with particular pre-decided amount of interest. User can also see all applied loans.
- 2. Contractor:** Contractor bid the projects created by customer. After approval of project by customer, contractor can complete work with multiple milestone. Each milestone would be accepted or rejected by customer. Also, contractor can create jobs for worker with specific skills. Worker opt for job and paid by contractor.



2.1. My Projects: Contractor can see Won bids, In Progress projects and completed Project. Projects in “In Progress” status can be seen with milestone details, budgets, starting and end date, location of work. Contractor can generate new milestones with details. All the completed projects with total milestones can be seen by contractor in “completed” status.

2.2. Bids and Tenders: Bids and Tenders modules include facility for bidding. Contractor can check projects in bidding within “My Bids” status. In “Open Tenders” phase all currently ongoing projects are stored with labour, material, customer and many more.

2.3. Manage Worker: Contractor can see all available workers and choose them for work based on customer's work requirements. Here, ratings and skills of workers can be seen.

2.4. Daily Attendance: Contractor generates attendance sheets for workers.

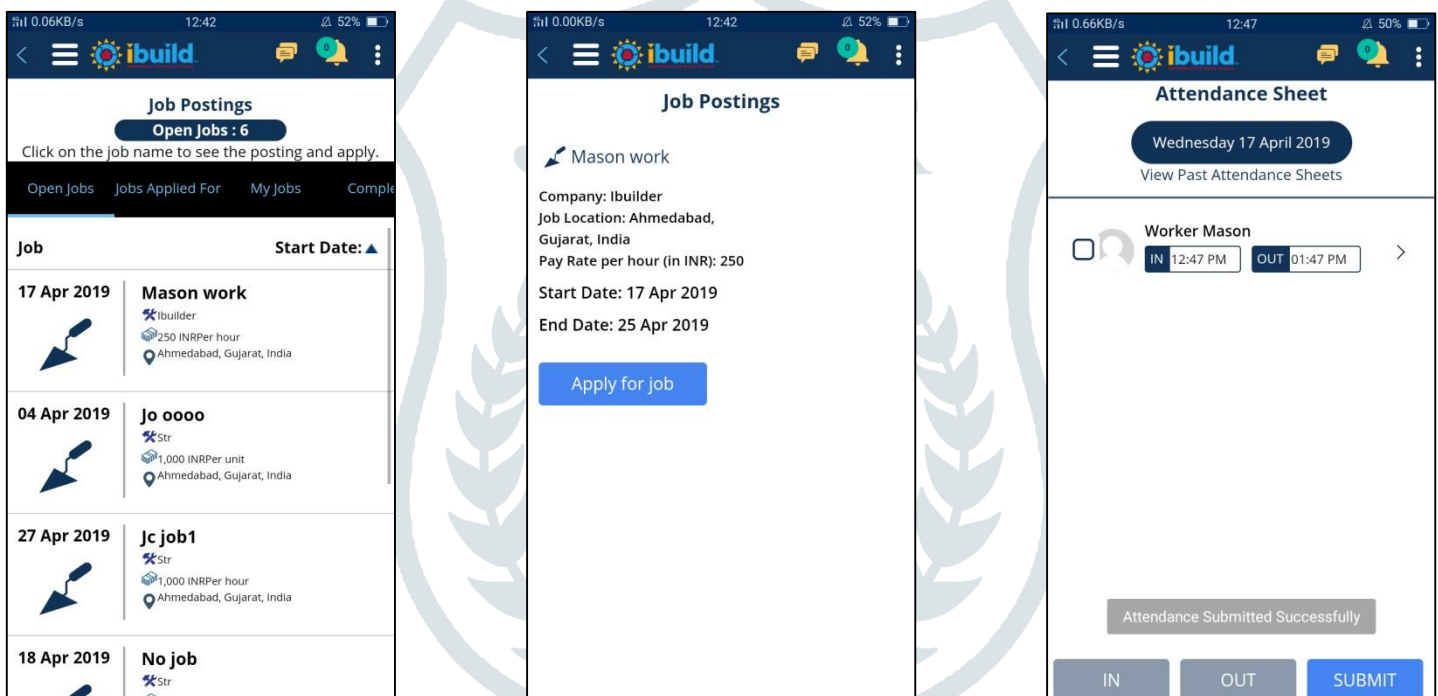
2.5. Action Items: Open tenders by customer can be seen in "Open Tender" phase. "Job Application" phase provides all job applications applied by workers.

3. Worker: Worker creates his profile with skill sets. Whenever contractor creates any job, worker can apply if required skill sets match with his skill sets. Wages are provided by contractor. Regular attendance can be created of different parameters like units, days.

3.1. Jobs: Worker can see different phases of jobs. "Open Jobs" phase provide list of jobs available in country. "Jobs Applied For" provide information about job which was applied by worker. "Completed" phase provide list of all completed and verified jobs.

3.2. Time sheets: It provides current and past time sheets.

3.3. Attendance Sheets: It provides attendance sheet which is submitted by contractor.

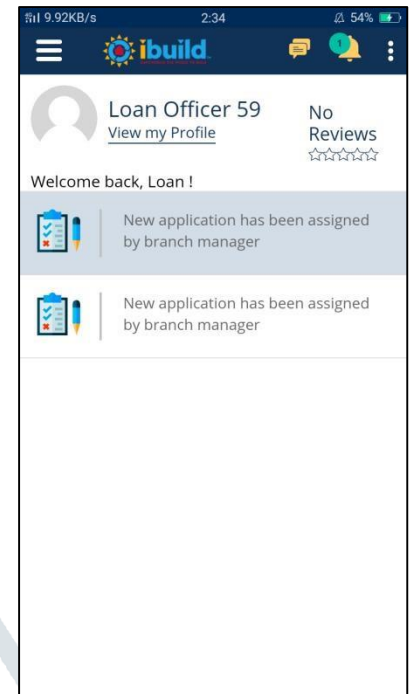
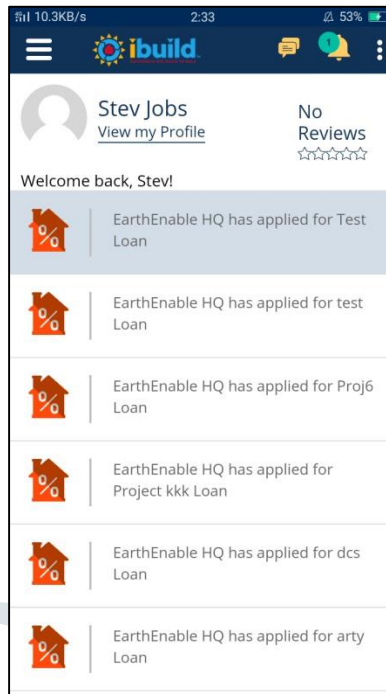
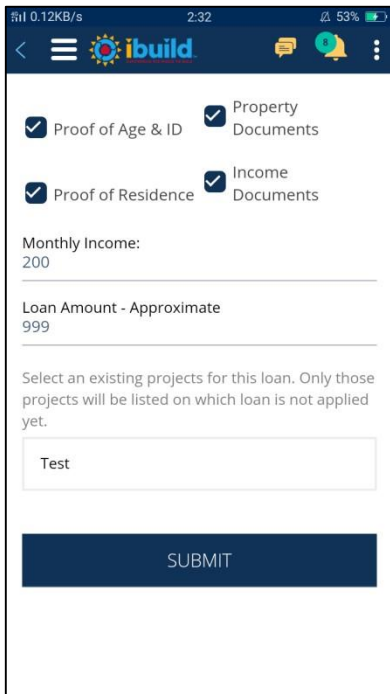


4. Lender: Mainly two roles comprise under lender.

a. Branch Manager: Only one branch manager is available per branch by loan provider agency. Branch manager assign all pending loan request to particular loan officer under him. He also approves the request of loan officer. Loan officer can see the status of loan applied by customer.

b. Loan Officer: Loan officer approves all documents provided by customer for loan.

All request from customer for loan approval will be received by Branch Manager, he forwards loan request to Loan Officer. Loan Officer will give approval for loan. After successful approval of loan customer will get the loan amount with fixed loan interest.



4.1. Loan Application: Lender will be able to see all loan application submitted by customer. It will also show the status of loan e.g. “In progress”, “Unassigned”, “Closed” etc.

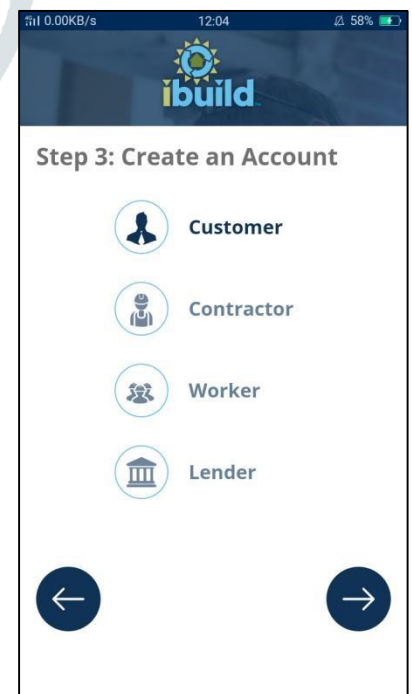
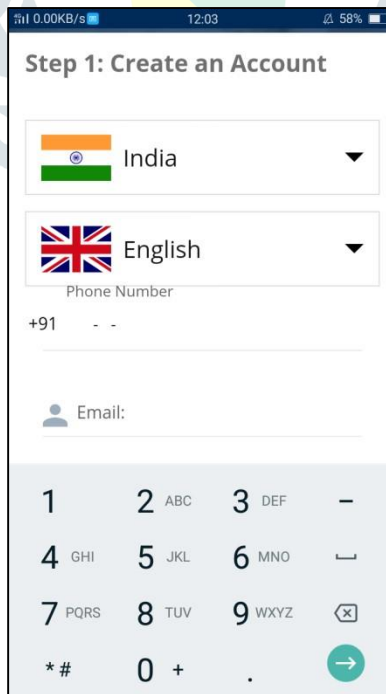
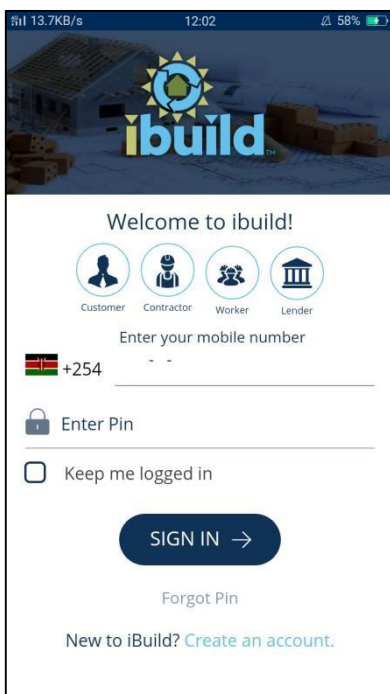
4.2. My Projects: Lender can see and manage all your projects with progress.

4.3. Staff: This module is available for Branch Manager. Staff request with pending request will be available and also staff members with their details can be checked.

4.4. Payments: Using Wallet and Bank option lender can pay loan to particular contractor. It will show the current balance of wallet, all transaction history (Inlet and Outlet of amount) with date.

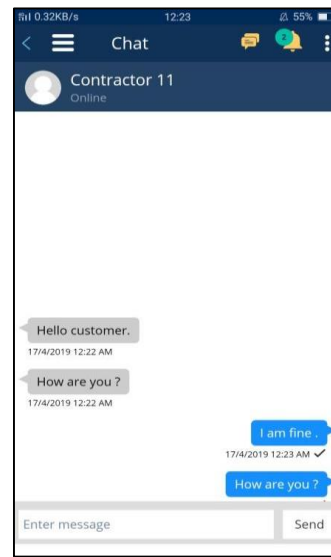
5. General Modules:

5.1. Login Module: Multiple Users can login simultaneously according to their roles. E.g. Customer, Contractor, Worker, Architect.

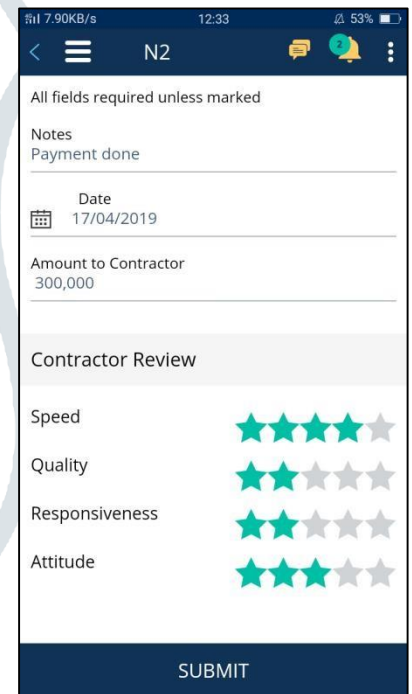
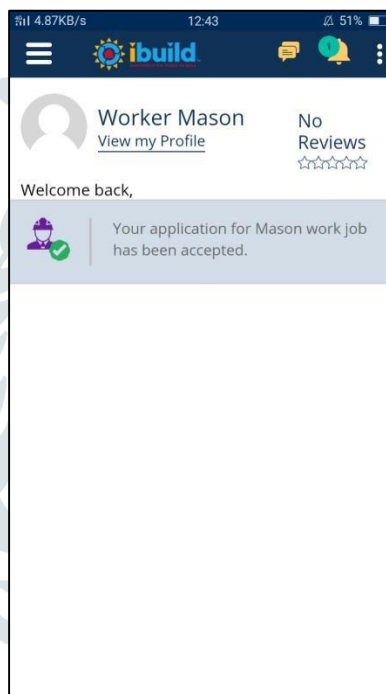
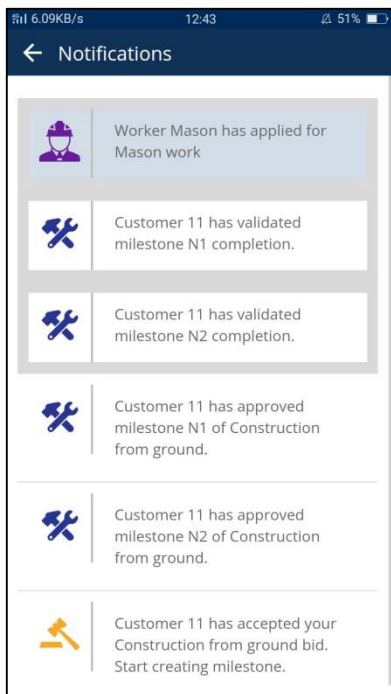


5.2. Edit Profile : User can edit basic information like name, email, pin, language.

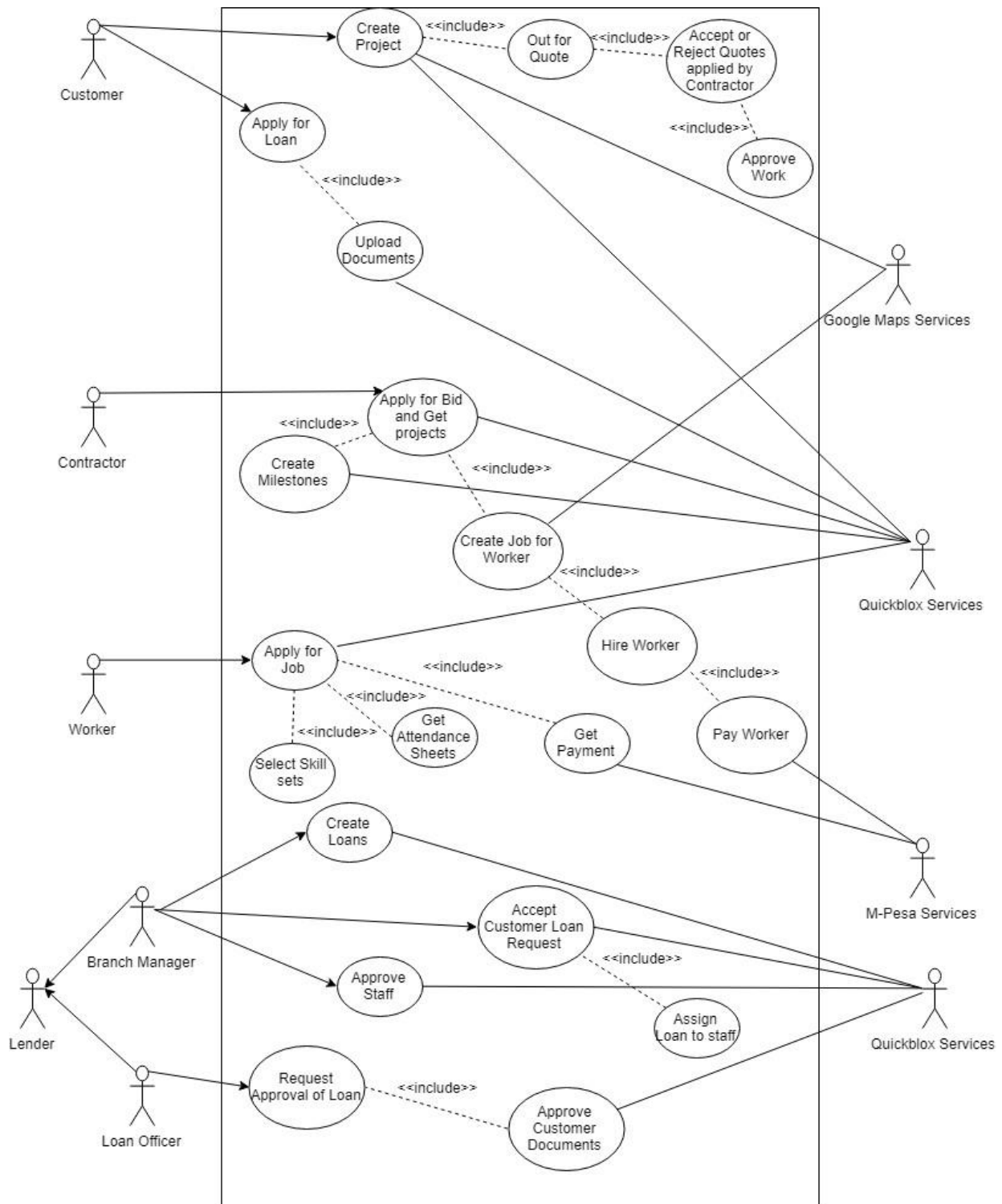
5.3. Chat Module : Any type of user can communicate via chat through this module. E.g. Customer can communicate with contractor to discuss about work plan, Worker can communicate to contractor about some work-related query.



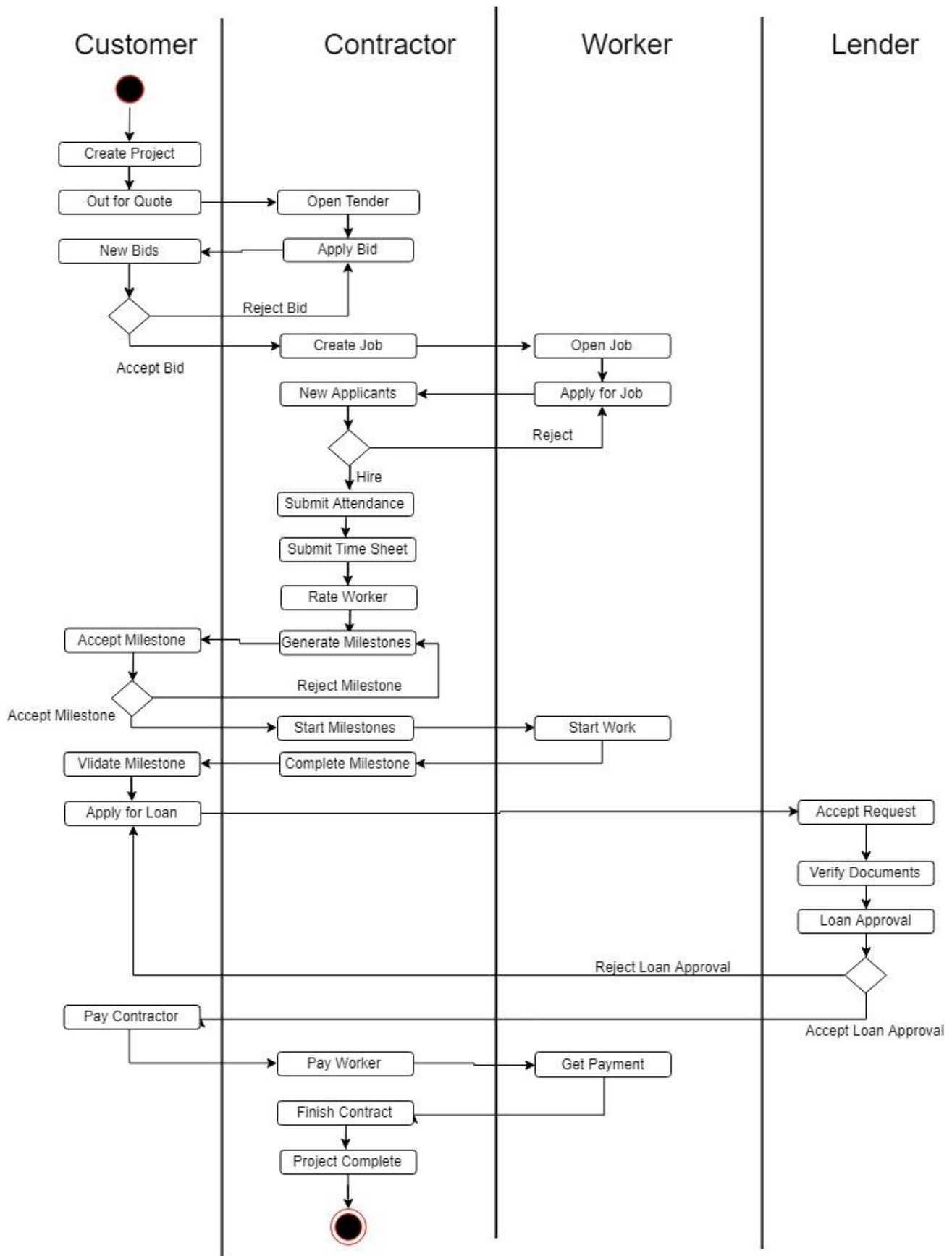
5.4. Notification : Customer can get notification of each milestone raised by contractor. Contractor will be notified for confirmation of milestone. Same way worker will be notified for particular task assignment



III. USE CASE DIAGRAM



IV. ACTIVITY DIAGRAM



V. TEST ANALYSIS

It is impossible to give everyone a home, but if a mobile app can transform the dynamics of the market, iBuild believe it can dramatically help close the 440-million-unit housing gap.

Test Case ID	Test Scenario	Test Steps	Test Data	Expected Results	Actual Results
T1	Do login with specific credentials	<ol style="list-style-type: none"> 1. Open application 2. Select user role. 3. Enter Mobile no. 4. Enter Pin 5. Select on "Sign In" button 	Role="Customer" Mobile No.=7359057017 Pin="1234"	Customer should login into application	As Expected 100% Accuracy
T2	Check user login with Invalid credentials	<ol style="list-style-type: none"> 1. Open application 2. Select user role. 3. Enter Mobile no. 4. Enter Pin and Select on "Sign In" button 	Role="Customer" Mobile No.=7359057017 Pin="1111"	Customer should not login into application	As Expected 100% Accuracy
T20	Loan Officer approve loan.	<ol style="list-style-type: none"> 1. Open notification of loan. 2. Check all documents for approval. 3. Click on "Approve" button. 		Customer and branch manager will be able to see "Active" status of applied loan.	As Expected 100% Accuracy

VI. CONCLUSION AND FUTURE WORK

We realize that there are many types of Virtual Construction platforms and these systems have contributed success to many organizations in the world. Virtual application systems can help the organization to save time, cost and energy in their operations and managements. These systems have provided a large database inventory for the organizations to store and maintain all the information. However, not every organization turns out to be successful after implementing the systems in their operations; it is all dependent on how well the organization can utilize it. Therefore, in order to fully utilize these systems, it is important that the management of the organizations to deeply understand how the systems work and how the systems match with the organizations objectives.

As there is advancement in technology, human expectations for Machine performing their task will increase and in order to that such software applications will come more into action. There will be a boom for such computer powered online workflow as offline cash flow will diminish. iBuild, can be used in any Construction/Architecture related field as it can be operated within any scope of area whether a country or a state.

VII. REFERENCES

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