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Smart Labourer – A Proposed System for locating Labourers

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Abstract— It is very challenging for a contractor to procure skilled/ semi-skilled manpower for the various construction activates. On other side labourers are going through lots of hardships. Labourers who work on daily or hourly wages in any construction work find it very difficult to get a job. Generally labourers gathering at a place like railway station or bus stop etc. every morning in search of jobs. If they have to spend their whole day without work then it will become difficult for their family to survive. There are many middlemen working between worker and contractor, they take commission from both parties workers and contractors. They offer jobs only to those workers who give them good commission and ignore others. Contractors also have to give commission to the middlemen and because of this labourers get lesser than the expected wages. This system will eliminate the middlemen agents and hence commission from the labourers. This System will also provide full wages to labourers by contractors which were previously cut by middlemen/agents. Instead of agents there will be placement agencies which will help the labourers offering jobs and these placement agencies will be paid by contractors depending upon the amount of work and number of labourers. This will gradually increase the jobs seeking for labourers and eliminate unemployment for labourers. Hence, our system will be helpful for contractors for finding labourers and also be helpful for needy labourers who work on wages.

Keywords—Contractor, Labourer, Middleman, Agents, Job, Construction

I. INTRODUCTION

Smart Labour is a proposed system to effectively locate and manage skilled, semi-skilled labour and owners, contractors through a recruitment agency. Agency will help contractors to hire skilled labours and semi-skilled. Labours will get employment directly without any agent's commission. System will also maintain profile of labour as well as contractors which will be helpful for contractors to decide whom to prefer and for labours to decide which contractor to prefer. Currently complete Labour and contractors generally rely on some random agents. There have been several incidents reported where these random agents setup traps in order to get money, generally the labour is not well educated and hence fall for the traps also Agents don't provide any of their personal information or provide fake information about them, when fraudulent activities are reported, it becomes difficult to track and hold them accountable for the crime they committed. Commitment of these random agents is not guaranteed. A proper trusted Agency will be setup in order to avoid these type of fraud agents. Agency will help the labours, contractors to register them in our system. Agency will provide these labours to contractors and owners according to the work for which the labours are required.

The project mainly focuses at increasing the efficiency of work by providing skilled labourer as per the requirement. Our system aimed at making millions of labour workers happier, smarter and more productive. Workers can learn life skills; share suggestions & report incidents via notes in their language.

Objectives of the research are as follows:

- Provide skilled and semi-skilled labourers as per requirement.
- Increase Job opportunities for illiterate labourer.
- Manage labourer and contractors profile.
- Make labourer happier and smarter.
- Increase efficiency of work.

We have provided literature survey on some significant papers in Section II. In Section III we depicted various leveled chart clarifying the framework usefulness with framework design. We demonstrated a Use Case graph centering the client's collaboration with the framework. Lastly, in Section IV we have provided results and discussion on our paper and Section V contains Future Scope for advancement of our framework and conclusion of the study.

II. RELATED WORK

The purpose of this literature survey is to introduce and recognize the restrictions of the job portal proposed by other researchers in the corporate field. Our centre of interest would be providing these job portals to the labourers who are working on the daily wages. Labourers placement is still depends on the traditional approach which makes labourers stand regularly in the morning for the seek of jobs and from their contractors or middlemen agents provide them jobs.
The proposed system aims at implementing job portal for the labourers. The idea of designing job portal for labourers is emanated through the exploration and detailed analysis of research paper published by the Jason Stuart Gorham[1]. Integrated Online Job Recruitment System is developed by the researcher which is a job portal which eases the job seekers work of locating jobs. This system simply extracts a keyword from the query and search it in the database and thus generates multiple similar results for a particular job profile. This system[1] does not work for the the labourers who work on daily wages.

Smart labourer is a proposed system for locating skilled or semi skilled labourers for construction and other similar profiles. Another research paper which was published by Evanthia Faliagka et al.[2] for the implementation and designing of the Online Recruitment System using Machine Learning shows the application of M.L. in the field of recruitment system. Using machine learning this system[2] is capable of extracting the job seekers linked-in profile and blogs to automate the process of applicant ranking and personality mining.

Similarly Stephane Lajoie, Alma (CA)[3] also suggests an online recruitment system in which third party entities will provide contact information of one or more potential candidates for a particular available job position which will be further used by the system to provide the job to the most suitable person and at the end the third party entity will gain some kind of profits after their candidate is placed. In this system, proposed by Stephane Lajoie, Alma (CA)[3], does not allow the candidates to register in the system and all the registration is done by the third party entities which is a drawback because it does not provide direct communication between the candidate and the job providing entity.

Online recruitment or E-Recruitment has been an issue of interest over the past ten years. Internet is considered as the latest tool in hiring. It is also said by Avinash S. Kapse et al.[4] Online recruitment offers recruiters one of the most powerful and cost-effective ways to recruit staff for an organization. Online recruitment, e-recruitment, or web-based recruitment is the use of online technology to attract and source candidates and aid the recruitment process.

Advantages of E-Recruitment mentioned by Avinash S. Kapse et al.[4] are as follows:

- Wider access and Geographical spread
- Larger audience
- Greater chance to find right candidate
- More opportunities for smaller companies
- Better match of workers

Smart labourer will ensure that rights of the labourers should be preserved and not harmed by the placement agencies and contractors. The traditional approach of recruiting labourers harms the right of labourers in many ways. Labour laws are mentioned as follows:

- Employment terms
- Minimum wage
- Living wage
- Hours
- Health and safety
- Discrimination
- Dismissal
- Child labour

It is quite obvious from the researches and studies that none of the authors proposed a system which can handle the process of hiring skilled or semi skilled labourers which works on the daily wages. All the previous systems studied[1],[2] and [3] only works for the qualified job seekers and not for the unqualified entities who can work as a labourer for any construction kind of works. Many researchers[4] also believe that E-Recruitment will be helpful in providing jobs in modern era. Labourers laws and rights should be preserved which is ensured by the proposed system. Thus the proposed system is very necessary in order to provide the labourers desired with good wages and preserve their rights so that any third party entity and job providers cannot harm their rights.

III. METHODOLOGY

Following block diagram is the overview of our system which provides the short overview of our system.

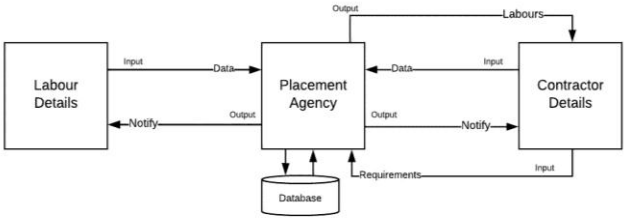

Figure 1. Block Diagram

As shown in block diagram, different tasks of each entity of our proposed system is defined. For each entity our proposed system have different set of input and respective output for that input.

In this section we are going to study some features of our system, implementation plan of our system and overview of our system using some labeled charts.

A. *Component Diagram*
Component diagrams are used to visualize the organization and relationships among components in a system. These diagrams are also used to make executable systems. It does not describe the functionality of the system but it describes the components used to make those functionalities. Component diagrams can also be described as a static implementation view of a system. Static implementation represents the organization of the components at a particular moment. Figure 2 shows the component diagram of the system.

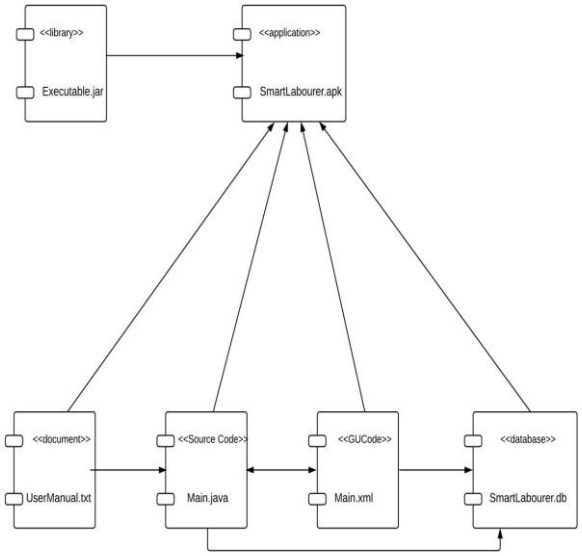

Figure 2. Component Diagram

B. *Use-Case Diagram*
It shows the major actors involved in the system which includes Labourer, Contractors and Placement Agencies. It also shows which use case is performed by which particular actors.

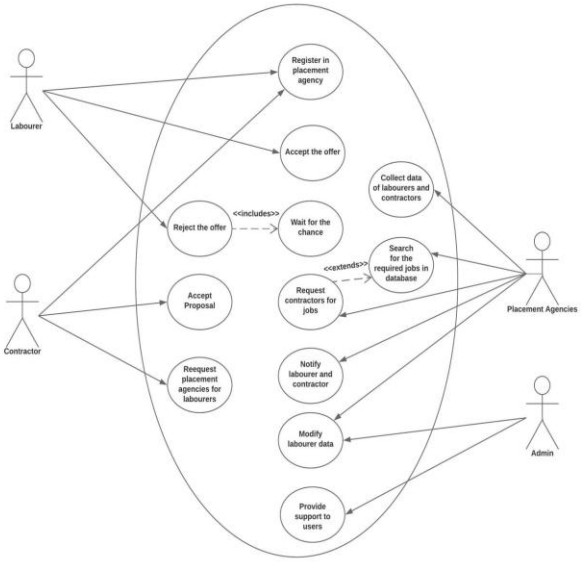

Figure 3. Use-Case Diagram

1. Labourer
Labourer performs basic actions in our system which includes registration in *Smart Labourer* through a registration page in the android application. If labourer is not able to use the android application then placement agency will take the responsibility to register the labourer in the system using some other type of medium such as survey forms, telephone call etc. After the registration if labourer is provided a job by contractors then labourer can either accept/reject that job.

2. Contractor
Contractor is another end of user which performs actions such as registration in the *Smart Labourer* mobile application or web application as per the convenience. Contractor can request different types of labourers in the system and placement agencies will provide response to their request in the form of requested labourers. Contractor either agree to the response or ask the agency to provide some other labourers.

3. Placement Agencies
Placement agencies will act as intermediate entity between labourers and contractors. They will perform all the major actions such as maintain the information of labourers and contractors, communicate with both entities, process the database to provide services to both entities, ensure the smooth processing of the tasks etc.

C. *Activity Diagram*
Activity diagram is another important diagram in UML to describe dynamic aspects of the system. Activity diagram is basically a flow chart to represent the flow form one activity

to another activity. The activity can be described as an operation of the system. Activity is a particular operation of the system. The Figure 4 shows the Activity diagram of the proposed system.

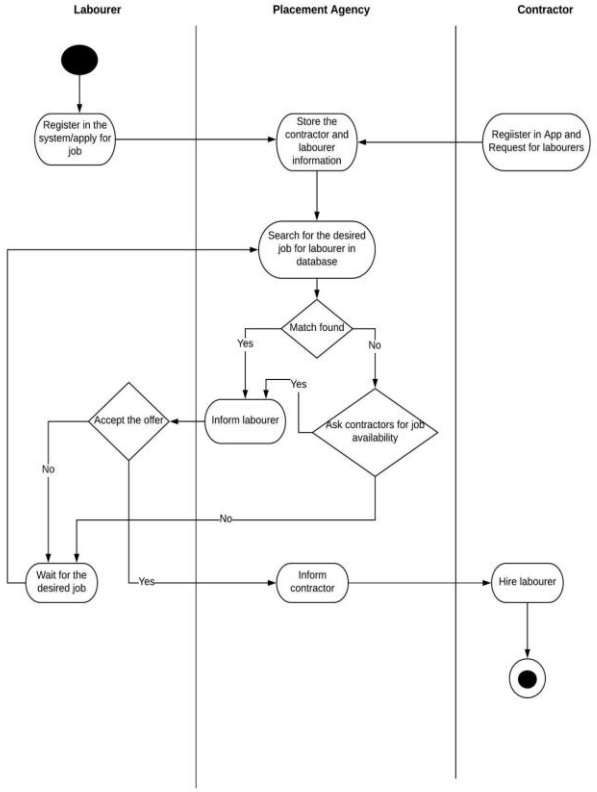

Figure 4. Activity Diagram

IV. Result And Discussion

Placement agencies such as Naukri.com and MonsterIndia.com provides job opportunities to only those workers and professionals who are certified in their skills or have done some kind of professional courses in their field such as Engineers, Accountants, Sales officers etc. These agencies provide jobs to labourers also but these labourers must have completed ITI courses in a particular field.
These existing systems such as Naukri.com and MonsterIndia.com do not provide job opportunities to the labourers who work on daily wages and do not have any qualifications or degrees for basic construction works where literate labourer is not mandatory.

V. Conclusion And Future Scope

The proposed system 'Smart Labourers' will be more effective to find labourers for construction sites rather than finding them manually or hiring agent/middlemen. This system can be used in large highway construction project for hiring labourers as well as daily working labourers for small projects. This system has high functionality of solving labourer finding problem and also reduces the cost and time for finding labourers, thus increases the efficiency of the proposed system.

The proposed system is not intelligent enough to classify the contractors in different classes based on what type of labourers a particular contractor usually requests. This feature will predict the labourers for a contractor to ease the process of recruitment. This feature can be implemented in future for our system using the Machine Learning algorithms.

Another feature which can be added in future is to provide ranking to the labourers based on the feedback provided by contractors under whom labourers had previously worked before. Ranking will also be based on how many times a labourer is hired by contractors. This will increase the chances for a highly ranked labourer to get hired by contractors in future. Wages might be increased as the rank of a labourer improves.

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