

Code-n-Mingle: An Indian Freelancing Platform with Bidding Strategy for Newbies and Students

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ABSTRACT:

In India, the rate of unemployment is on an upsurge. Due to the COVID-19 pandemic, many people are facing salary cuts, job loss, etc. The main objective of this project is to improve the status of the rising unemployment rates and degrading quality of lifestyle. Joblessness among skilled or low-skilled people can be solved by freelancing or microwork. Our system is dedicated to providing the user with a web interface to sell, buy or develop their projects. This project brings coders, sellers, and buyers on a single platform. It also supports the idea of New Education Policy (NEP) 2020 proposed by the Indian Government, as this can be a platform for exposure of students who have the technical knowledge of coding. The students/coders can upload their projects and bid for them as well as develop the buyers' projects. The buyers can buy the projects of the coders. The projects are sold and bought based on the quality of work and a bidding strategy. The potential outcome of this project would be a system that would help the user to sell, buy or develop their projects, leading to self-employment and qualitative work.

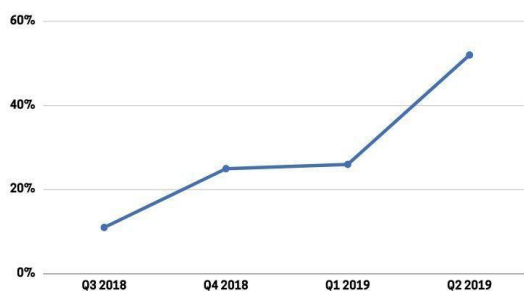
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I. INTRODUCTION:

The conventional idea of "labor" as referring to the everyday grind is giving way to a more liberated manner of working, aided by ever-increasing technology, which threatens to substitute labor as we have known it for centuries.[7] Bots, or software meant to automate particular processes, are the most apparent and popular expression of attempts to imitate ordinary human interactions like scheduling meetings and finding flight and hotel pricing, to name a few. Bots will become more sophisticated monsters as the technology matures, capable of disrupting even more cognitive jobs currently handled by humans.



Increase in Indian Freelancers

The incredible rise of the Internet, dubbed the Fourth Industrial Revolution recently, is impacting practically every business in every country. The magnitude and scope of these changes are indicative of the ongoing transformation of the entire production, management, and governance systems, which occurs only infrequently. It's one of those watershed times in history that could cause yet another labor market upset and fundamentally reshape how we work.

So, with the rapid unemployment rate, employee dissatisfaction, employees hopping between jobs & the rise of entrepreneurship, the concept or the culture of freelancing is slowly capturing people's attention. Due to COVID-19, many people were forced out of their jobs and with the economy falling for India there are very few opportunities for the youth of our nation to showcase their skills and to earn a decent amount.

The fact that most of the youths are looking forward to learning new things, exploring more work-related genres & wishing to change jobs/career paths can also be considered as a factor for freelancing coming under the limelight[9]. The future of freelancing in the country looks promising. Many individuals choose to work the way they want, where they want, and what they want to work on. The freelance stats are estimated to go up to \$20

to \$30 billion[3] by the end of 2025!

Around 15 million people in India are freelancing as of 2020 majorly working in sectors of IT, Sales, Marketing, Finance, etc. If we go according to Wikipedia, around 50% of the employees would be freelancing by 2025. But the payment received by freelancers in India is comparatively less than that of other countries. College students also get encouraged by the culture of freelancing and aspire to become one to secure some funds during their courses.

1.1 Digitalisation in Labor Market:

Bots and Artificial Intelligence (AI) have given rise to new career prospects[4] in traditional sectors. Technology has produced jobs, according to a new Deloitte research, particularly in knowledge-intensive industries like medical, education, and other professional services. It is, however, erroneous to believe that technology is merely a privilege for the educated and an opportunity for the unemployed. Technology is not only producing jobs for the less educated, but it is also giving informal workers the ability to use technology and digital platforms in their work. Multiple definitions exist for the informal labor market[2]; certain features

(also mentioned above) are distinguishable, including whether employees are taxable, have access to social safety or insurance services, whether they have minimal salaries, etc.

The development of online freelancing[8] and microwork as rewarding prospects in the informal labor market of mainly India. During the processes, the digitally empowered workforce seeks employment and maximizes productivity on a continuum of rough to complicated corporate processes. The range of work includes heterogeneity of skills, experience, work planning preference, etc. In reality, research has shown that firms can eliminate inefficiencies and lower costs by creating an organization that creates a dual job market, a combination of highly paid employees and lesser paid self-employed specialist skills.

II. SURVEYS:

2.1 Existing System Surveys:

There are a few existing systems related to our project field. After some research and analysis, we came across the methodology of the system and a few of its drawbacks. The below table gives us the gist about these existing systems:-

TABLE 1. How is the condition of the existing freelancing systems

System	Description	Limitations
FIVERR	A platform that connects businesses with on-demand freelance talent offering digital services which include graphic design, digital marketing, programming, video, and animation, etc.	Doesn't care about sellers, Doesn't care about the timezone, Any work can be copied, Fiverr support is very late in replying.
UPWORK	a legitimate freelance marketplace that connects clients and freelancers.	Blocking freelancer's profiles, Excessively high commission, Money in the accounts are frozen as a guarantee.
FLEXJOBS	a subscription service that's focused on telecommuting jobs, including freelance, flexible and part-time opportunities.	Not a good platform for freelancers, Interface is not good, Asks for subscription first.
FREELAN CER	freelancing and crowdsourcing marketplace by a number of users and projects.	Extracting funds is time-consuming, It takes a project fee (10-20%).
PEOPLEPE RHOOR	An online community of freelance talent that helps companies to outsource specific projects to remote workers when needed.	Many call it a place for fraudsters, Customer service is the worst, Account verification part is the worst.

2.2. Literature Survey:

[1] ARIFIN, Riscal; DANIWAN, Benny; WIJAYA, Dellih. Freelancer’s E-Marketplace Information System Using Profile Matching Method. Tech-E, [S.l.], v. talks about how the e-marketplace information system can increase freelancer revenue and the level of customer convenience in finding workers according to what is needed and can make the transaction process efficient and effective. As a result, it helps provide decision criteria for client selection.

[2] Abhinav, Kumar & Dubey, Alpana & Jain, Sakshi & Virdi, Gurdeep. (2017). CrowdAdvisor: A Framework for Freelancer Assessment in Online Marketplace. 10.1109/ICSE-SEIP.2017.23. talks about a few multidimensional assessment frameworks which evaluate freelancers on several dimensions and uses the present information about the freelancer, therefore, utilizes the past jobs he has performed. The framework is evaluated on the info collected from a well-liked online marketplace. A report shows that the assessment made by the proposed framework surpasses the baseline algorithm.

[3] Hong, Kevin & Pavlou, Paul. (2013). Online Labor Markets: An Informal Freelancer Economy. SSRN Electronic Journal. 10.2139/ssrn.2132869. In this report, they discuss three aspects of online labor markets. First, the overview of the present state of major online marketplaces. Second, a novel perspective on the frictions that exist within the micro-level interactions between buyer companies and the service providing bodies. Finally, practical implications and proposals for companies.

[4] Tu, Zhiying & Zhaoyang, Liu & Xiaofei, Xu & Zhongjie, Wang. (2017). Freelancer Influence Evaluation and Gig Service Quality Prediction in Fiverr. 10.1109/ICWS.2017.20. identifies the main features which will be used to evaluate freelancers’ impact and develop a system (i.e Gig service property + Seller Impact + Customer Review + Semantic Content) to predict gig service

quality. It includes the service semantic data in the prediction model and integrates all these four factors.

[5] Pataropura, Amesanggeng & Riki, Riki & Manu, Joshua. (2019). Decision support system for Selection of Assembly Using Profile Matching Method and easy Additive Weighting Method (Case Study: GKin Diaspora Church). bit-Tech. 2. 43-52. 10.32877/bt.v2i1.100. Talks about their system for decision-making support by application of Profile Matching Method and Simple Additive Weighting (SAW) method. Where Profile matching may be a decision support method using calculation of weight and weighting by dividing the major factors and supporting factors. And using the easy Additive Weighting (SAW) method may be a weighted housing method, by normalizing the choice matrix (x) to a scale that will be compared with all available alternative ratings.

[6] Hannak, Aniko & Wagner, Claudia & Garcia, David & Mislove, Alan & Strohmaier, Markus & Wilson, Christo. (2017). Bias in Online Freelance Marketplaces: Evidence from TaskRabbit and Fiverr. 1914-1933. 10.1145/2998181.2998327. In this paper, they study two famous online freelance marketplaces - TaskRabbit and Fiverr - and analyze if they are affected by racial and gender bias. Both marketplaces are biased: gender and race are significantly related to worker evaluations, which may harm employment opportunities.

[7] Toth, Ilona & Heinänen, Sanna & Blomqvist, Kirsimarja. (2020). Freelancing on digital work platforms – roles of virtual community trust and work engagement on person-job fit. VINE Journal of Information and Knowledge Management Systems. ahead-of-print. 10.1108/VJIKMS-12-2018-0124. Talks about the purpose to investigate the impact of virtual community trust on work engagement and person-job fit in the context of digital work platforms where the emergence of the platform economy is changing the work environment fundamentally and has enabled the appearance of alternative work arrangements.

TABLE 2. Literature survey of the existing projects

Year	Method	Results	Challenges
2020 [7]	Freelancing, Digital work platform, Virtual community trust, Person-job fit	confirmatory factor analysis	need more understanding on the relationship between the nature of work and personal abilities, that is between job characteristics and personal characteristics
2019 [1]	Profile matching, ranking, Blackboxing	It helps to provide decision criteria for the client selection.	The ranking may not be accurate.

2019 [5]	Profile Matching Method and Simple Additive Weighting, decision matrix	Profile Matching and Compared with all available alternative ratings	Conversely, it is possible that less important criteria are included, causing decision-makers to be distracted and biased in their choice of options.
2017 [6]	Gig economy; discrimination; information retrieval; linguistic analysis	Analysis of TaskRabbit and Fiverr	may not generalize to other freelancing services.

III. PROPOSED PROTOTYPE:

We at *Code-n-Mingle* just want to provide the right platform to these young and skilled freelancers so that they get valued what their job should be valued like. The system also will support students so that they can become independent using their skills in the right way. No doubt there is a freelance market in India, but due to less value and fewer job opportunities, it has become nothing but an online labor market. Skilled individuals should be hired for project-based work and should be paid considering both the party's capabilities. Existing systems are pretty biased about payment to freelancers.

Our system works only for freelancers working in the IT and programming sectors. The coders can sell their projects to clients and can continue to freelance. The main benefit of this model is that it lowers transaction costs for both parties; digitalization and online platforms bring freelancers and clients together in one place (virtually), transcending time and space barriers, providing clients with more variety, and providing freelancers with more opportunities.

Platforms employ a range of ways to induce network effects. Most platforms in this two-sided market³⁷ subsidize one side by allowing freelancers to register for free while charging clients to access this database of registered freelancers (eg. Upwork, Flexing It, Ghar se Naukri, etc). In this ever-evolving world of online freelancing, platforms are in fact market makers.

Our system has two major modules which consist of:

- Coders
- Buyers

All the users will have to register themselves to access our platform.

The main objective of every buyer/client while choosing or hiring a freelancer is to find

someone who is dedicated, experienced, can do some high-quality work and the most important thing is that they should be efficient in time-bound work. Generally, the hiring process takes place online itself. Our platform is providing all the necessary parameters required during hiring a freelance employee. So as the figure description mentions the 3 major modules of our system, let's go through each one of them thoroughly.

3.1. Coder / Freelance Employee:

In our system, considering all the probabilities of a freelance employee, the employee may be a student or an actual employee. If we look at it from a student's perspective, an IT student in his entire college life works on various successful projects which later on are dumped. But our platform provides such skilled students the ability to sell their completely working projects to various clients willing to buy such projects with enormous potential of development in them. The coder here can set their evaluation of their project and post it on their profiles.

But, now if we look at it from an IT professional's perspective, we have a whole different image. These coders can apply for the projects posted by buyers or say the clients who wish to hire some qualitative freelance employees for their work. Now, to eliminate the biased nature^[6] of other existing systems, we have included a system that allows the coder to bargain for their work projects with the client.

Also to eliminate the factor of projects being copied, a coder cannot see the profile of other fellow coders. A profile of any coder would also consist of feedback from their previous clients, their work experience, their identity proof, etc. As proof of their project's originality, the coders will also be asked to add details of their project including sample codes, etc.

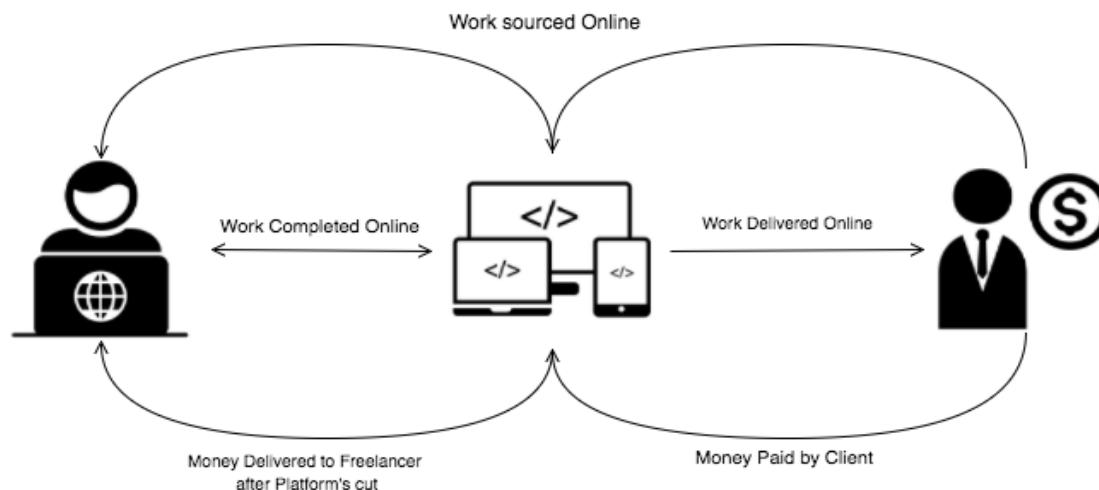


Fig. Freelancing model of proposed system

3.2. Buyer / Client:

For a client, their project must get completed within the given deadline, within the given budget, and a greatly skilled freelancer. Adding the details of previous work experience and feedback from other clients on the profiles[5] of the coders makes the whole process a lot more efficient for the client.

The client can post their project details and whoever applies for that project, the client can access the coders' profiles to check out their details. Since the client runs a bit tight on the financial side, they would be allowed to post the salary or cost of their project-based jobs. Also, the buyer can give feedback on the coder's work. The buyer can also buy the projects posted by coders for further development.

A share of the payment will be kept as a commission after each project transaction is complete. The system has a bidding algorithm designed which enables both sides to decide a decent price for the work, therefore, valuing both sides equally.

3.3 Bidding Strategy:

Freelancing actually meant a mercenary who offered to fight for the highest bidder. But now, the word freelancer means one who offers unique

and much needed skills to those willing to pay for them. Code-n-Mingle is essentially coder-centric but our system makes sure that both sides are served satisfactorily. Our system follows a bidding strategy for the projects uploaded. All the users whether a coder or buyer is allocated with a unique ID. A project uploaded by a registered user (includes both: a coder selling a project or a buyer wanting to get a project developed) is initially given a project ID by the system. The uploader can set a minimum bidding price on their project. While selling their readymade projects, the coders can set a minimum bid to which buyers can place bids and apply to buy these projects. Similarly, the buyers can set the minimum price that they can afford for the development of the project. Every bid placed by any user is assigned a bid ID for the bid amount they enter. Our algorithm has two deciding factors for the project allocation process. One is the minimum online bid amount placed by a user and the other is the potential deadline offered by the coder. The buyer while finalizing the allocation, can decide upon these factors and choose a coder for his project development.

After a period of deadline+10 days, all the bids placed (other than the one selected) for that project will be deleted, so as to reduce the amount of garbage data stored in the database.

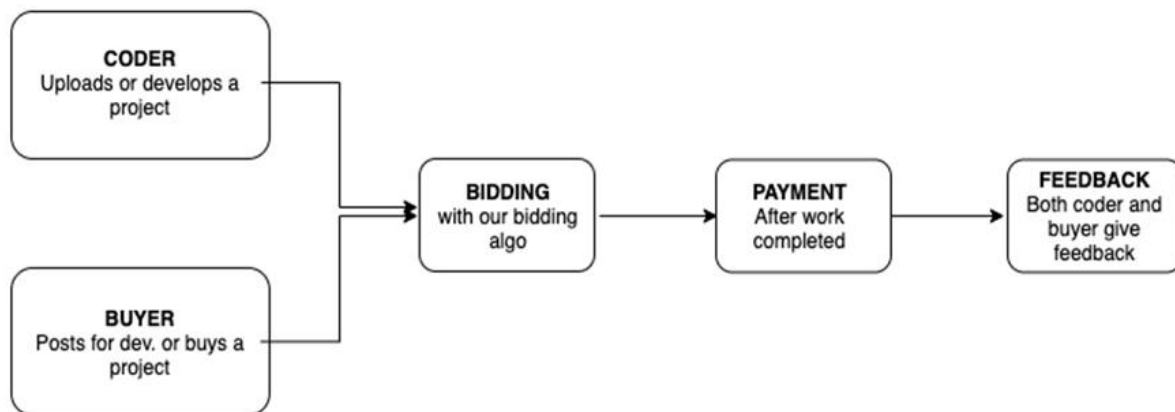


Fig. Proposed system (simplified)

IV. RESULTS:

Through this research paper, we developed a system that provides the right platform to the IT & programming students as well as professionals who wish to be freelancers. Code-n-Mingle is the right launch pad for such freelancers. The framework specifically addresses the issue of biased working parameters & also tries to introduce the culture of freelancing among Indian individuals by making sure that they get paid well for these project-based jobs.

V. CONCLUSION:

Freelancing is said to have grown in popularity as a way for students to earn money while they study. According to reports, 21% of British graduates with a first-class degree freelance. Businesses seek assistance with their web content from student copywriters, bloggers, and essay writers. Freelancing jobs are also advertised on online platforms to students as a source of extra income, assistance in making a career decision, working independently, and a paid opportunity to practise and gain expertise. College Recruiter is a student-only internet network. Freelancing has long been popular among students in India, even before the internet. Word of mouth was a significant marketing technique for students, allowing them to connect with the freelance community, which still works today. IIT Mumbai recently established a freelancers' cell. The new generation of Indian companies hires student freelancers from IITs who are skilled in mobile app development, coding, and design, among other skills. We received a positive response from students who were interested in freelancing options through our survey. Online communities for students are becoming more active and participatory.

We aim to implement a module in our system through which, unskilled people who have brilliant ideas to be developed, can sell their ideas

on the platform after the evaluation (of the idea) by an expert committee. People with high potential ideas can also make use of our platform to evaluate & estimate their ideas & then sell them to the right client at the right price. These ideas can then be used by the clients for further development. Our future work is likely to include a better pay scale for the users as well as looking for better commission opportunities. Along with that, we look forward to implementing a detailed employee evaluation system within our system, so that it becomes more efficient & easy for the employer/client to hire a freelance employee.

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