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On-Demand Mobile Application for Household Service

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Abstract— With the new demand of convenient home based online solutions for various daily tasks,the need for efficient and easy to use approaches designed to connect households with reliable service providers like plumbers, electricians, carpenters etc. is increasing rapidly. If you are new to a place then it becomes very hectic and time consuming to get a professional and reliableserviceproviderwithnegotiableprices.Also,the helpers struggle to get work even with proper skills due to lack of connections or marketing. To address this challenge, an On-Demand service application was developed to make it easier for the consumer to get professionalsaccording.Theapplicationcaterstheissue of both the users as well as helpers by providing them a platform where they can approach each other as per their requirements, the user can search for a nearby helper and the helper gets service request from the user according to their skills. The implementation uses React.js for the frontend, Node.js with Express.js for backend and MongoDB for storing all the data. The APIs were tested using Postman and the application is hostedusingVercelwithcodemanagedonGitHub.The developed approach enhances helper accessibility, reduces user effort, and provides a scalable solution for household services. Future work may focus on more advanced version with better user experience.

Keywords—On-Demand Services, Price Negotiation, React.js,Node.js,MongoDB.

I. INTRODUCTION

In recent times , the speed of dependency on the internet is surprisinglyfarbeyondanyone'sexpectation.Forlargedayto dayworksandserviceslikehotelroomreservation,railwayor planeticketreservationtoorderingsmallhouseholditemsfor everydaylifewearetotallydependentontheinternetandthe online services. We people are so invested in our jobs and activitiesthatwe forget to manageand care for us as wellas our homes. It takes extra time and connection to search for reliable and professional service provider for different purposes. Different household services like plumbing, carpentering,electricalissuesneedstogetresolvedassoonas possibletoavoidanypossibleaccidents.Whenwearenewto any placeand need such service providers,webecome clueless aboutwhomtoaskandevenifwegetthecontactwehaveno idea whether the person is reliable and professional. That's whenServiceCocomesintorole.Itprovidesallthenecessary day-to-day service providers like painters, plumbers, carpenter,mechanicetc.Youdon'trequiretogoanywhereor askanyonefortheworkers,just logintoourwebsiteandsearch fortheworkerwhocancompletethetask.Thiswebsite isaone stopsolutionforallyourhouseholdproblems.Thiswillalso help theworkersto generatesomeextraincomein onlinemode along with their usual shop.

II. LITERATURE REVIEW

In thecourseof their study Anithaetal.cameup with aweb basedhomeservicemodelthatwasansweringtotheemerging needfordoorstepservicesfrombusypeopleande-commerce growing [1]. They have the modular design which helps in improving service coordination, scalability and user satisfaction.

AnAndroidbasedsolution,E-SEWAbyKaushiketal.,was developedtolinkusersandmaintainersthroughanappthatis built on Firebase-based authentication and real-time data handling[2].Thesystemfurtherbuildstrustand effectiveness in service delivery.

Based on the previous work by Bhawarthi et al., their developed home service provider platform was focused on user-centered design, clear pricing and simplified booking processes [3]. Utilization of geo-location and feedback mechanisms will enhance service quality as well as the customer experience.

Smart online home service system has been described by Madhumathietal.tointroducesecureauthenticationinvolving online payments and real-time notifications [4]. Their study indicatestheimportanceofstandardizedpricingandverified providers to users' trust construction.

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III. SYSTEM DESIGN

A. Existing Systems

Urban Company: It is an Indian service-based application which connects the customer with trained professionals for home based services like beauty and spa, cleaning and pest control,ACandAppliancerepairfoundedinNovember,2014. It is very much popular in India to help people with their difficulties. This app connects people with a variety of different services which are done by specialists. It operates across multiple Indian cities with standardized pricing and quality control.

B. Proposed System

Tohelppeopleintheirdaytodaylifeandmaketheirlifeeasy, wearebuildingaplatformforthenecessaryhomeservices.It is interactive, user friendly and dynamic in nature which enhancestheperformanceandexperienceofthecustomeras wellasthe service provider. The website isbeing developed usingNodeJsandFirebase. WewilluseMongoDBdatabase for our backend to store, manage and process our user data efficiently.

TheappwillhavelocationbasedfeaturesbecauseoftheuseofGoogleMapsAPI.Itwillenablelocationbasedservicesandhelptoestablishaseamless interactionbetweenthetwo.User canseethenearbyserviceprovidersaspertheirlocationand the service providers can also get the directions to their customer's address once accepted.

Somekeyfeaturesofourapplicationwillbe:

- Servicebooking
- Locationbasedservices
- Realtimeupdates
- Usermanagement

C. System Modules

1) Registration

To access our services, the user needs to register on our platformasacustomeroraserviceprovider(worker).Atfirst, he/sheentersthemobilenumbertoreceiveanOTP.Ifalready aregistereduser,itwilldirectlylandtoourhomepage,ifnot, thenaformappearsonthescreenwherethecustomerneedsto fill the required personal details to create an account on our site. In case of a service provider, the form requires few professional details as he/she wants to work for. Then the account gets created and the worker lands to our homepage.

2) Admin

Thismodulegivestheadmintheauthoritytoverifytheworkerprofileaspertheirprofessionaldocumentssharedbytheworker.Anyissuerelated totheuserorworkerprofile is also managed by this module.

3) Service

The customer can come, register with all the basic details, then select the desired location and search for the servicethatisrequiredandexplainabouttheworkthatneeds to be done then the request will be sent to all the nearby workers.Ontheworker'sside,he/sheregistersastheservice providerwiththeirpersonaldetailsandthenecessarydetails regarding their profession. When a request from nearby customerissent,theworkergetsnotifiedwiththelocationand theworkdetails. The workershareshis/herofferpricewhich gets notified to the customer. If the customer gets a suitable pricein accordance with workthenhe/she acceptsit toproceed further.

IV. METHODOLOGY

The website uses the model of Client-Server architecture whichaddssecurityandefficientservices.Itisdividedintwo parts-thefrontedaswellasthebackend.Thefrontend(client side)has three primary modules- User, Service Provider (worker) and Admin.

AllthesemodulesaredevelopedusingReactJS.ReactJSisa component-based JS library used to build dynamic and interactiveuserinterface.Itsimplifiesthecreationofsingle-page application. In the User module, the user can create profile,logintothewebsiteandsearchfortheservicethatis requiredandbookaccordingly.Itprovidesasimpleandclean designwhich makes it easy to use. The Worker module receives request from the user according to their profession theyareregisteredfor.He/sheoffersthe priceaspertheservice requestand later providesthe service tothe user ifaccepted.

TheAdminmodulecontrolstheentiresystem.Ithandlestheothertwomodules(userandworker)incaseofanyissuesandthetransactiondetailssuchaspaymentstatusandtransaction ID.

The backend(server side) is developed using NodeJS and ExpressJS,whichisapopularJavaScriptframeworkusedfor creating RESTful APIs. It manages the authorization, authentication for both the user as well as the worker and handles the HTTP requests. It also manages some other functionslikebookingoperations,servicemanagementandthe communication between the frontend components and the database .It uses the MongoDB database. Our system uses NodeJSandExpressJSforthe interactionofthesystem with thedatabase.TheauthenticationiscompletedbyJSONWeb Token (JWT). JWT is a secure way to send information betweenclientandserver.Itismainlyusedinwebapplications and APIs to verify user and prevent unauthorized access.

V. RESULTS AND DISCUSSIONS

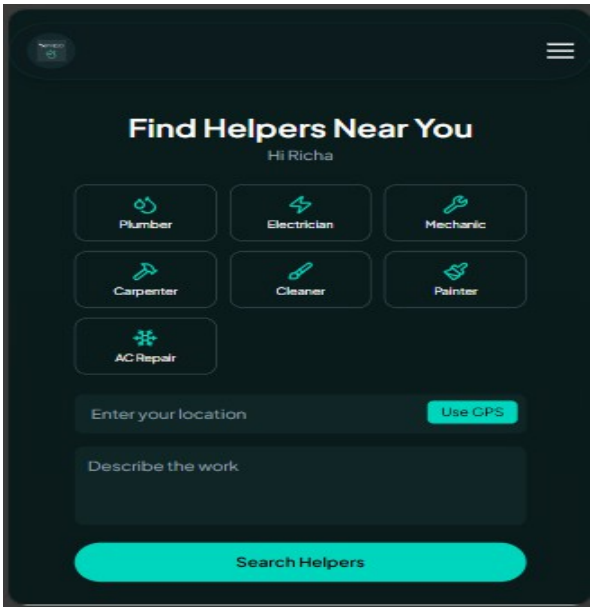


Figure1:Home Page

Figure 1 is **Home Page** of our application, at the user end. Where user can search for the helper(worker) they need.

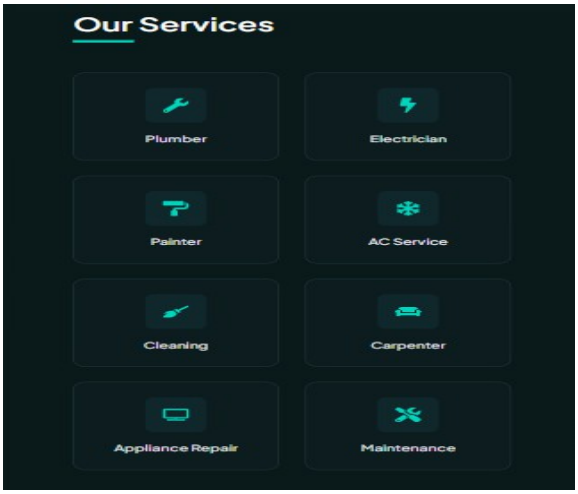


Figure2:OurServicesPage

Figure2showsthetypeofservicesavailablefortheuseratthe user end. User can book the helper accordingly.

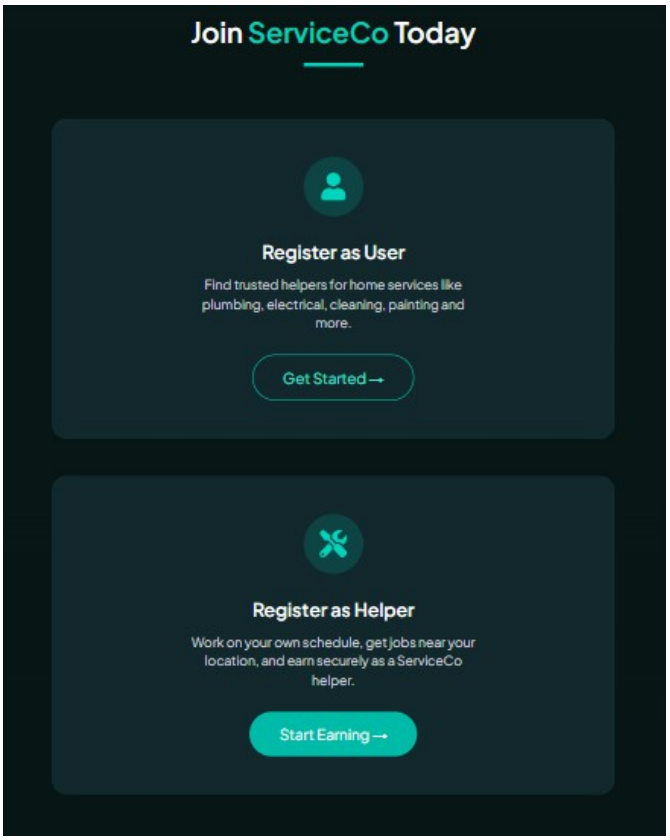


Figure3:RegistrationPage

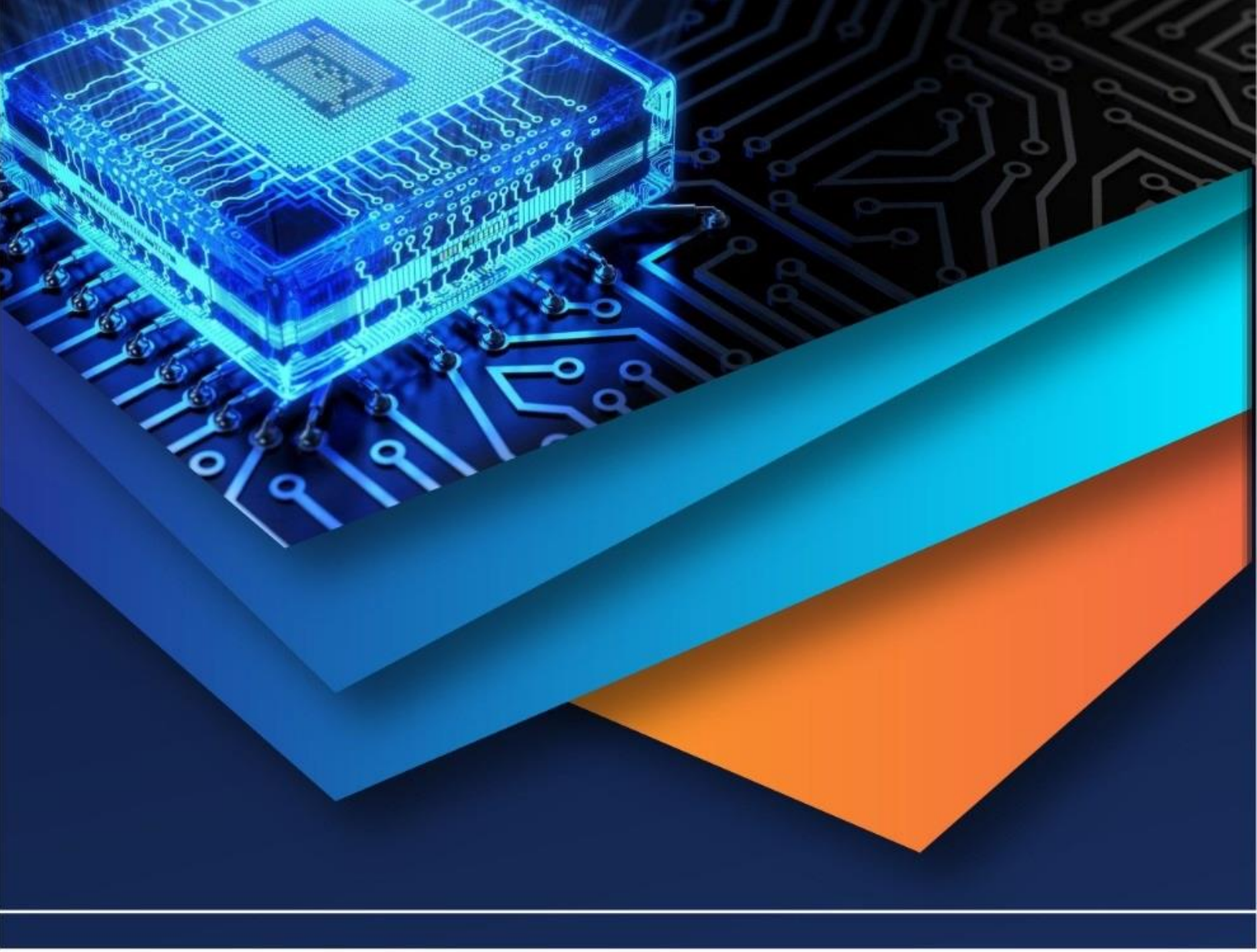
Figure 3 is where both the User and Helper can register themselves on our site.

VI. CONCLUSION

ServiceCo is designed to assist the user to complete their household task efficiently in less time as compared to old traditionalofflinemethod.Itnotonlyhelpstheuserfortheir householdactivitiesbutalsohelpstheworkerstohaveanextra sourceofincomeapartfromtheirusualshop/work.Ithelpsto reduceunemploymentduetothenewmoderntrendofonline based approach for every other work. ServiceCo acts as an aggregator between the user and the worker by providing a platform with a variety of different services like plumbing, carpentry, painting etc. Furthermore, we can also add other different servicesasper the requirements. And change the texts indifferentregionallanguagesothatitwon'tberestrictedto anyonelanguageonlyandmoreandmorepeoplecoulduseit comfortably.It also follows the new trend of the rapidly growing market of online services.

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