

# VIRA - Virtual Assistant Integrated Business Process Management System for Virtual Assistants

<sup>1</sup>Dale Alphonso, <sup>2</sup>Sandhya Pachupate, <sup>3</sup>Shaivi Ganatra, <sup>4</sup>Swapnil Pawar, <sup>5</sup>Vaibhav Vasani

<sup>1, 2, 3, 4, 5</sup>Department of Computer Engineering, K. J. Somaiya College of Engineering, Vidyavihar,

University of Mumbai, Mumbai, Maharashtra, India. <sup>1</sup>d.alphonso@somaiya.edu,

<sup>2</sup>sandhya.bp@somaiya.edu, <sup>3</sup>shaivi.g@somaiya.edu, <sup>4</sup>swapnil.cp@somaiya.edu,

<sup>5</sup>vaibhav.vasani@somaiya.edu

**Abstract** - Every enterprise involves a series of work which has to be done with great efficiency and maximize return on investment. No matter how big the organisation is the success or failure depends on the execution, assigning and the completion of the work. Each role in an organisation that has to deal with a series of task like managing of work, clients, users, assigning of work and giving an appropriate attention to one of its individual. In this work, we propose a website named "VIRA" which is user-friendly. Here, a CRM (Client Relationship Manager) will be able to assign the work to the VI (Virtual Assistant), monitor the work after completion and calculate the Karma Points and the Earnings for the work which will be displayed on the dashboard of VI. The Manager will be able to view and monitor the whole system. The proposed work mainly focuses on efficient work management within an organization with adequate communication and distribution of work and points among the Virtual Assistants.

**Keywords** - broadcast, client relationship manager, karma points, process management system, virtual assistants, work assignment.

## I. INTRODUCTION

Efficiency and maximize return on investment are the cornerstone of any business organization. To achieve that aim MNCs always profligate resources such as time, humans, high tech software's, etc. Economic pressure, demand for diversified skills, and limited in-house manpower have made MSME and startups look for arm's length virtual assistant or service provider companies to take care of business operations. Much of the human power is engaged for one specific work which could be done by one person via this system and hence human power can be utilized in a properly for other work. There is a growing demand for Virtual Assistants and service providers across the world by managing work within service provider companies is still a challenge as work is human-centric which makes it difficult to define, manage and scale.

To create a business process management system that incorporates the virtual assistant service provider's Standard Operating Procedure within a software system to be used by internal organization and clients to manage work life-cycle. Using this system company will be able to provide a wide range of administrative tasks such as appointment scheduling, allocation of tasks, record data into the database,

and miscellaneous administrative work such as calendar management. At the start of the business, work could appear easy due to less work pressure however as the business expands, pressure and schedule would enhance, one mistake could lead to disaster, and here proposed system could organize everything such that all the goals are set systematically. System design is a company agnostic software where any company will be able to add their work roles depending on their internal work process. If the project is to be used by some other organization, then they would define their database as per them such as tasks or templates to be used frequently related to their company and, then get started with it by defining the work that needs to be done.

## II. LITERATURE REVIEW

Software engineering practices are challenging activities in the startup context due to their limited resources and need to create high-tech and innovative products. The challenge becomes even bigger when taking into consideration the startups' search for highly scalable business models. Since they cannot rely on such a heavyweight software process they need to resort to alternative practices [1]. Human has two kinds of knowledge. The usually called knowledge is expressed as written material, chart and mathematical

formula, that is only one kind of knowledge; the other one is that not yet expressed, for example, that we master in the process of our action.” The former is called explicit knowledge and the latter tacit knowledge. The basic tasks of knowledge management are the transformations of relatively tacit knowledge and the unexpressed explicit knowledge to the expressed explicit knowledge [2]. So, the knowledge between the CRM and the Client will be tacit knowledge which will then be transferred to explicit knowledge by the CRM while creating a work in the Work Directory.

There are many task management systems but most of them are heavily paid and even if they are free, they provide very limited features which aren't of that much importance. Trello is a collaboration tool that organizes your projects into boards. In one glance, Trello tells you what's being worked on, who's working on what, and where something is in a process. Basecamp is a real-time communication tool that helps teams stay on the same page; it's less for traditional project management tasks (e.g., resource planning and long-term scheduling). With to-do-lists, calendaring, due dates, and file-sharing, Basecamp provides a way for teams to keep track of priorities and actionable items. Aha! is a company that sells Software-as-a-Service (SaaS) product roadmap software for Product Managers (PMs) in software, Web, and technology companies in the United States and internationally. Todoist is a to-do list and task manager for professionals and small businesses. Combining tasks, projects, comments, attachments, notifications, and more, Todoist lets users streamline their personal and team productivity and work more effectively. Toggl Plan is a simple yet flexible task management software tool that adapts to your way of work. Use it as a personal task manager or as a team task management software. Toggl Plan's visual interface makes planning and progress tracking a breeze. These are the systems already available but they come with their pros and cons where most of them being paid is the biggest con. Since not all startups at the initial stage have strong financial support to pay these software companies for management of their work.

In this paper, the goal is to build a system that is use-friendly, free of cost, and at the same time assign and monitor the work done by the Virtual Assistant. The Manager will be able to view and monitor the whole system and the CRM will be able to Add Category, Add Work, Add Clients, Add Users, and assign Work to the VI.

### III. IMPLEMENTATION

The goal of the system is to develop the accurate flow of work management among the virtual assistants, CRM, and manager. The first step of this project is to know the requirement of the organization and design a basic workflow of the system which helped in effective implementation of the system. Based on functional and non-functional requirements, VIRA bundled its phases as:

- Creation of the work directory i.e., categories and their work.
- Distribution of the work with respect to roles and responsibilities.
- Manager module can view work directory, add /view clients, organization people.
- Client Relationship Manager module can have access to the client list, create work and assign work to virtual assistants.
- The Virtual Assistant module will view and complete work, change status, mark completion and access the work directory.

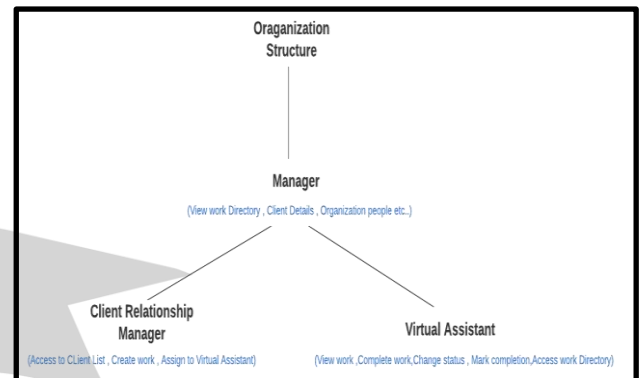


Figure No. 1 Organization structure

#### A. Manager Module

Manager will add the work, modify the existing work belonging to a particular category, create a user by adding the details of the user such as email and password that will be used to create the authentication in the Cloud Firestore and allocate the role for every user. Manager will also be able to create the client with all the client details and view the same.

#### B. Client Relationship Manager Module

The Client Relationship Manager (CRM) will be the one who will interact with the client and get all the details related to the work that the client wants to be completed. CRM will Add Work and hence Create Category also for that specific work if it is not mentioned and can also modify the existing work and can Add Virtual Assistant in the system. The main task of CRM is assigning the work to the Virtual Assistant and on completion of the work CRM will monitor the work and mark the status as Finally Closed and then calculate the Karma Points and Earnings for that specific Virtual Assistant which will be displayed on the dashboard of the Virtual Assistant. CRM will also be notified if any Virtual Assistant is interested in completing the work which is displayed in the Work Available section and then the CRM will assign that work to that specific Virtual Assistant.

**C. Virtual Assistant Module**

Virtual Assistant (VI) module is the one who will do the work assigned by the CRM. VI can access the work directory for the related work information but has no rights to modify or write in the directory. The Virtual Assistant are of two types i.e., Internal Virtual Assistant (within the organization) and External Virtual Assistant (freelancers). The work assigned to the Internal assistant cannot be rejected whereas the External Virtual Assistant can reject or accept the work. The VI are also given the choice to enhance their work skills by looking on to the Work Available section and clicking on the work in which they are interested. All the status of the work will be notified to the CRM and on completing the work the CRM will assign the karma points and accordingly the Virtual assistant's earning will be calculated and updated on their dashboard.

**D. Work Directory**

Each work present in the organization will be stored in the work directory by selecting the category to which they belong. The category can be added through category form and work can be added or modified by the Manager and the CRM. The Virtual Assistant can only read the work directory but cannot perform any write operations. Basically, the work directory will work as a Work Template for any work that needs to be completed.

**Workflow of VIRA:**

1. A client seeks a CRM for services that are communicated.
2. If the client has a work that was previously provided to the company, the work details will be in a form of a template stored in the work definition.
3. If the client requires a new work, it would be verified and easily added into the database by the CRM.
4. All the minute details such as platforms, software, the version will be retrieved from the client through CRM so that it is easy to carry out the work.
5. The CRM will then assign the work to the appropriate Virtual Assistant to start the work process.
6. On completion of the work, the CRM will monitor the work and then calculate the Karma Points and Earnings for that particular VI.

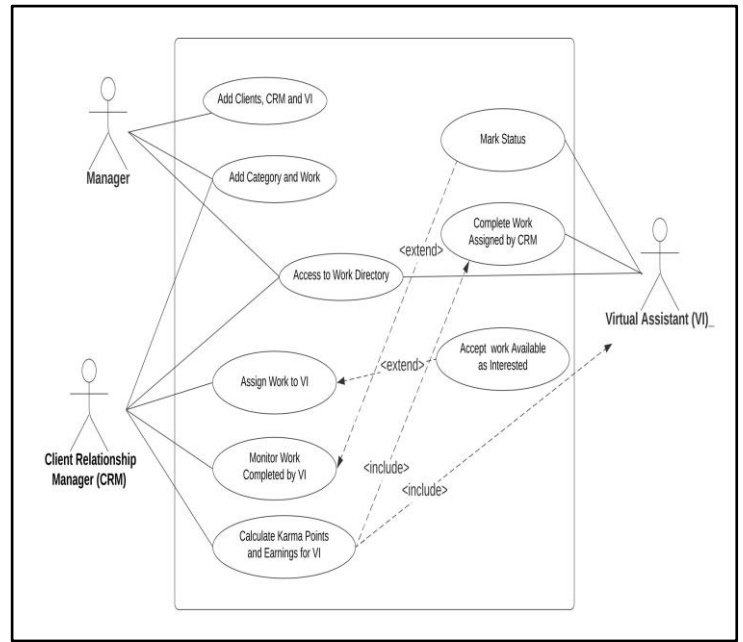


Figure No. 2 Use Case Diagram of VIRA

**Design of the Proposed System**

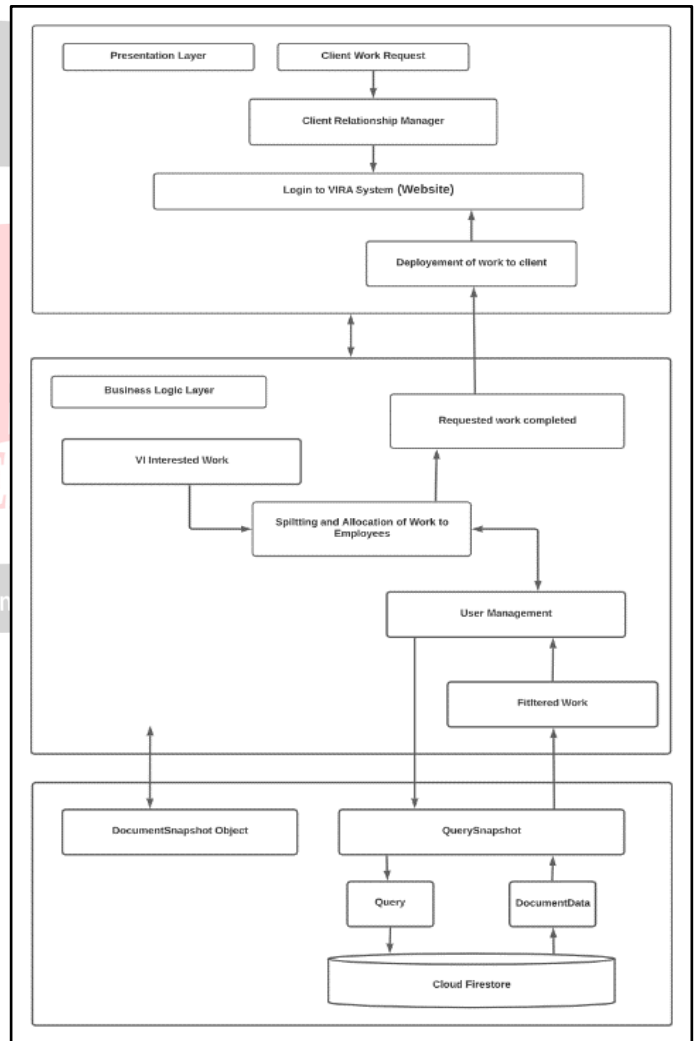


Figure No. 3 Proposed System

**Explanation of various levels in the structure:**

**1. Client Model:**

Client Mode consists of Client Request Model where in Client Request for the work will be given to CRM (Customer

Relationship Management). After the CRM receives the Client Request, CRM will login to the VIRA system which is VIRA Interface.

**2. Logic Model:**

This model consists of Splitting of Work, Allocation of Work and Deployment of Work to the Employees using a model to assign the work and service layer which consists of User Management and Filtered Work from the Database.

**3. Data Model:**

This model consists of Connection Object to Firebase - Cloud Firestore where in a Query Snapshot via a Query is fired to the database and information is retrieved in the form of Document Data.

**IV. RESULTS**

In this section, we will explain the working of the proposed system illustrated with the help of screenshots shown below:

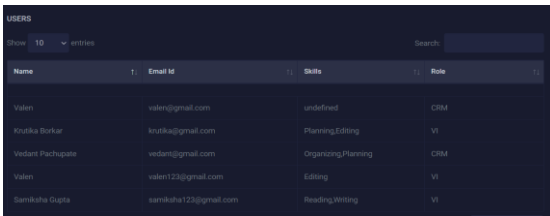


Figure No. 4 Users Registered in the System

**A. Users Registered in the System**

This is a manager user interface which will display all the users which are added with respect to the CRM and VI user role. Details such as the user’s name, email id, skillset and user role. By looking at the User table it will help the manager and the CRM to assign the work to the user according to their skill set.

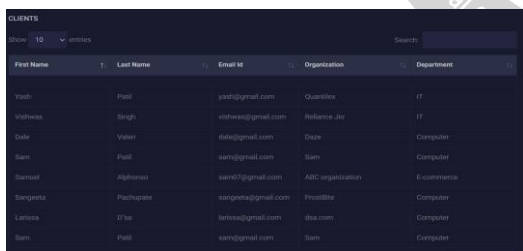


Figure No. 5 Clients Information

**B. Clients Information**

Here the important client details are displayed in an abstract tabular format that are added by the manager. Details such as client name, email id, organization and the department are displayed.

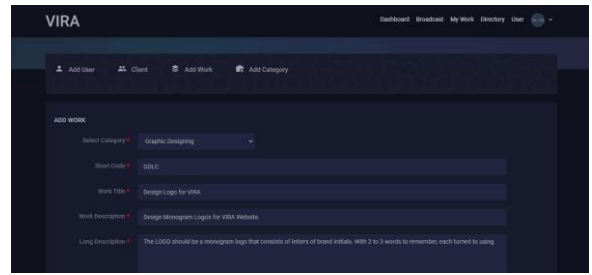


Figure No. 6 CRM creating a new work as proposed by Client

**C. CRM creating a work as proposed by Client**

CRM is the one who will create a Work as proposed by Client with the specified fields such as Category, Short Code, Work Title, Work Description, Long Description, Time Required, Skills Required, Tools Required, Client Questions, Video Training, Work Folder, Work Wikipedia, Related Work, Assigned to and Karma Points. If the CRM does not have all the specified information at present, then he needs to fill in the mandatory fields only and can later edit and save the work



Figure No. 7 Assigning the work to the VI

**D. Assigning the work to the VI**

CRM will be assigning the work to the VI based on the skills of VI as well as assign Karma Points for the work.

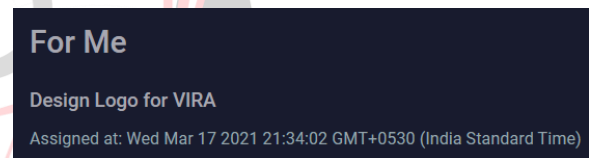
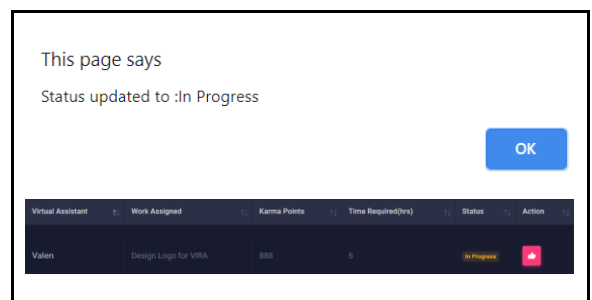


Figure No. 8 Assigned work available in For Me section on VI’s dashboard

**E. Assigned work available in For Me section on VI’s dashboard**

As soon as CRM assigns the work to VI, it will be displayed on VI’s dashboard in the For Me section where in the VI can have a complete look at the Work and mark the status for the work as and when required.



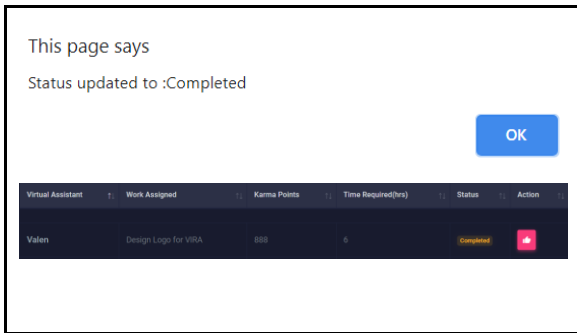


Figure No. 9 VI updating the Status of Work and CRM tracking the Status of Work as updated by VI

**F. VI updating the Status of Work and CRM tracking the Status of Work as updated by VI**

When the VI changes the Status of Work, it will be reflected to the CRM too so that CRM can have a track on the status of work. Status will be either “In Progress” or “Completed”

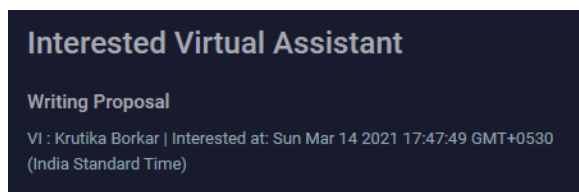


Figure No. 10 VI Interested in the work is updated in the CRM

**G. VI Interested in the work is updated in the CRM**

If any Virtual Assistant is interested any work, he/she can make a visit to work available section where the user can enhance their skills by simply clicking on the “Interested” button of that work. The CRM will be notified about the VI’s interest in Interested Virtual Assistant section and later assign the work to them.

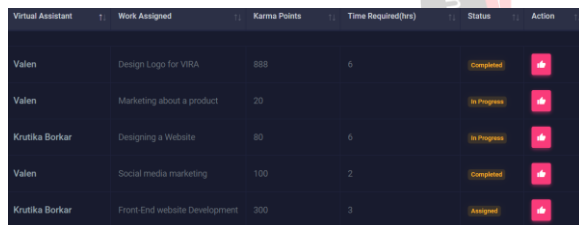


Figure No. 11 Tracking Status of all the Work Assigned to VI

**H. Tracking Status of all the Work Assigned to VI**

The CRM can track the work of VI by looking at the abstract tabular format which will display information about the VI’s name, work assigned to them, karma points, time required for the work to complete and the status of the work. A button is also provided for the CRM to close the work if completed perfectly and by doing this the VI’s dashboard will be updated with credits according to the work done.

**V. CONCLUSION AND FUTURE WORK**

This paper proposes a suitable business approach that is best suited for the work allocation within the virtual assistants. The research has been developed to address the problem in the startup companies and also provides a solution for it. VIRA - Virtual Assistant has many features. The client relational manager handles the clients and takes care about the client requirements and creates or modifies the existing

work accordingly and assigns the work to Virtual assistants. On receiving the Assignment of the work, the external virtual assistant has either to accept or reject the work whereas the internal assistant has to complete the work. The CRM will be able to track and close the work status and with that the Virtual Assistant will receive their credits (karma points) and earnings. In the next stage the project will focus on the enhancing the features such as sending mails whenever a work is assigned to the VI i.e., E-mail Integration, creating teams and assigning work, incorporating visualization about the Virtual Assistant’s work.

**REFERENCES**

- [1] Renata Souza, Karla Malta, Eduardo Santana de Almeida. “Software Engineering in Startups: A Single Embedded Case Study”. 2017, IEEE/ACM 1st International Workshop on Software Engineering for Startups (SoftStart). J. U. Duncombe, “Infrared navigation—Part I: An assessment of feasibility (Periodical style),” *IJREAM Trans. Electron Devices*, vol. ED-11, pp. 34–39, Jan. 1959.
- [2] Chengxiong Zhou, Zhuojun Liu, Shulian Niu, Lanxiang Zhao. “The basic task analysis in the knowledge management process” 2009. International Conference on Information Management, Innovation Management and Industrial Engineering
- [3] Jyothi N S, A Parkavi. “A Study on Task Management System”. International Conference on Research Advances in Integrated Navigation Systems (RAINS - 2016), April 06-07, 2016, R. L. Jalappa Institute of Technology, Doddaballapur, Bangalore, India
- [4] Hajime Eguch, Kohei Seki, Tomomi Aoyama, Ichiro Koshijima. “Optimal job routine assignment for the improvement of operational resilience based on skills and knowledge of production staff in the chemical industry”. SCIS&ISIS 2014, Kitakyushu, Japan, December 3-6, 2014
- [5] Dr. Vivek Venkobarao, Senior Member IEEE, “Avoid Startup Traps”, (Volume: 47, Issue: 3, Third quarter, Sept. 1 2019)
- [6] Shazna Samath, Dilantha Udalgama, Hansani Kurukulasooriya, Dilsha Premarathne, Samantha Thelijjagoda. “Collabcrew - An Intelligent Tool for Dynamic Task Allocation within a Software Development Team”. 2017 11th International Conference on Software, Knowledge, Information Management and Applications (SKIMA)
- [7] Grishma Hedao, Priyanka Thoke, Raksha Tabhane, Shubham Meshram, Swapnil Kumbhalkar, Prof. Mukesh Barapatre. “Online Task Management System (OTMS)”. IRE Journals Volume 2 Issue 5 ISSN: 2456-8880, November 2018
- [8] Khan Ayan Mujahid, Pathak Manasi Rajendra, Sayyad Kaynat Diler, Chavan Ritik Manoj, Prof. Vishakha N. Pawar. “Employee Task Allocation System”. International Journal of Advanced Research in Computer and Communication Engineering Vol. 10, Issue 1, January 2021
- [9] Yudian Zheng, Jiannan Wang, Guoliang Li, Reynold Cheng, Jianhua Feng. “QASCA: A Quality-Aware Task Assignment System for Crowdsourcing Applications”. ACM SIGMOD International Conference, May 2015
- [10] Neellohit Burghate. “Work Breakdown Structure: Simplifying Project Management”. International Journal of Commerce and Management Studies (IJCAM) Vol.3, No.2, June 2018