

Business Resource Center

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Abstract — Every year, a plethora of local businesses start up trying to grow and succeed. These businesses main aim is to excel in their area of operations and improve the business. Even well-established businesses need to provide better services than their competitors in order to survive which is only possible with a great leadership and a perfect business plan. Several businesses get shut down due to a variety of reasons. One reason that is common for these businesses is that they lack vision and guidance. In this Paper, we propose a Business Resource center for local businesses whose mission is to build, sustain and grow local businesses, promote local business development and students of a university are the resources who service these local businesses. Business Resource center is a channel between Local businesses and students where students provide the services which aligns with the mission of the business.

Index Terms — Small local businesses, students, business development.

I. INTRODUCTION

Business Resource center is a one stop consultation service using vast resources in business, engineering, medicine and counseling with local businesses to help them solve real world problems. It is a service for local business of any size or type which provides the resources for creating a successful business. Even if the business is just starting or need to expand, Business resource center can service these businesses with the required resources.

The resources are the students from the university who receive enormous content through academia but lack a chance to use their skills to solve real world problems. By helping out the Local businesses students get a chance to involve in the problems faced by the local businesses. Business Resource center is a channel between Students of a university and Local businesses. Local businesses benefit a lot from this since the resources are volunteering themselves in solving the problems

local businesses face thus saving a great amount of money for the local businesses.

Local businesses lack the expertise and guidance and they reach out to Consultants who charge them on the basis of business hours. It costs them both money and time but with business resource center there is no cost involved and students can service them faster. Business resource can provide a variety of resources to Local businesses. Some of them include Management resources where management students can provide Hiring and training services to the businesses, Marketing resources where students can set up and manage a website, social media accounts and also perform search engine optimization for the businesses, Sales resources where students can give number of ideas on how to improve the sales and retain customers, Payroll, taxes and Auditing resources where Finance students can use their skills and perform these services to the local businesses. Every business need these services at some point in their operations and Business Resource Center is the one stop service for all these requirements for the Local businesses.

II. SYSTEM ANALYSIS

A. Problem Statement

Small businesses dominate the private sector of San Jose and many other cities overwhelmingly. These businesses usually struggle a lot to get their problems solved since they are short on budget and can't hire big consultancies to resolve their issues. Already the entrepreneurs who have taken this leap to dive and start small businesses are investing a lot of money, time and energy. On top of that if there are certain requirements like for small businesses such as grocery shop, advertising the product to increase the sales, or creating an online application to enable users to access their catalog and order it from home require extraneous money, time as well as energy.

B. Existing Systems

As an example, to existing systems, there are certain consultancies who provide facilities to the small businesses but that are not cost effective as that comes out to be an extra cost for the entrepreneurs. They usually struggle to find the cost optimized solutions and have to compromise on many factors due to the budget issue.

C. Proposed Study

In this work, we propose a one stop consultation service portal where small businesses will be able to post their various problems and students can post the solutions as well as reach out to them to help without any involvement of money. This could be a very noble cause as well for the small businesses as they will not have to compromise now and can ask for a number of problems on the portal if anyone is willing to help out. Moreover, if the solution is of interest to the student, he gets self-satisfaction, along with it he gets to learn and explore new things while providing the solution. So, it becomes a win-win situation for both the small-businesses as well as students.

III. IMPLEMENTATION

Business Resource Center is a platform that will be used by multiple type of users like students, companies and administrator. Keeping in mind the users we have 3 different modules i.e. user, admin, business module that combines to form Business Resource Center portal. Below are technologies that are used to develop Business Resource Center.

A. Technologies used

A.1. Node.js

Backend for Business Resource Center is implemented using node.js. Node.js is an open-source, cross-platform JavaScript run-time environment for executing JavaScript code server-side. Node.js because to scale to large volumes of clients, all I/O intensive operations in Node.js are performed asynchronously.

A.2. React.js

Frontend for Business Resource Center is implemented using react.js. React.js is a declarative, efficient, and flexible JavaScript library for building user interfaces. React because of its virtual DOM implementation for updating DOM elements in an efficient way.

A.3. MongoDB

Database for Business Resource Center is implemented using MongoDB. MongoDB is a NoSQL document based database with advantages like scalability and flexibility with querying the data.

A.4. AWS

Business Resource center is hosted on AWS ensuring high availability with consistency and partition tolerance in database using MongoDB 3 node Replica-sets. Each MongoDB node is hosted on separate EC2. The Business Resource Center server is hosted on EC2 wrapped around with services like dynamic auto scaling and load balancer to make it highly scalable.

Load-balancer will be accepting requests from the users. These requests will be distributed among the Business Resource Centers server instances associated with the Load balancer. If the traffic increases on the Load balancer and the CPU utilization for existing server instances reaches more than 40%, the Cloud watch will signal auto scaling service to create new server instance and add it to the load balancer.

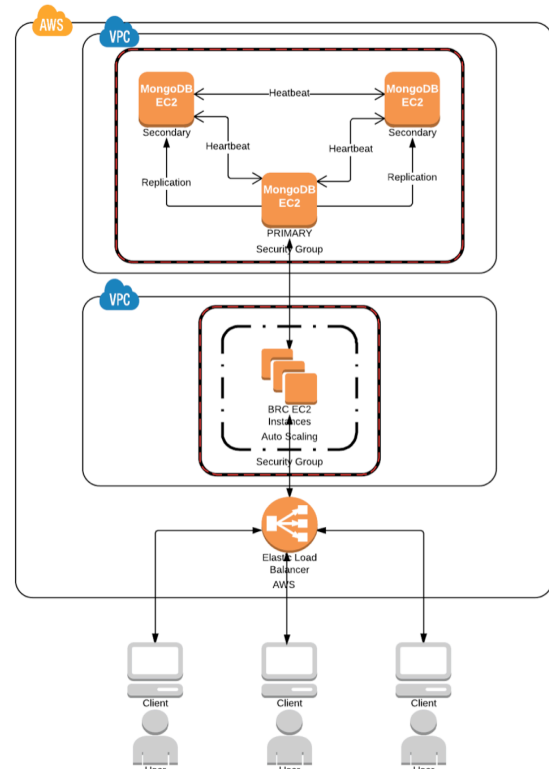


Fig 3.1. Architecture of BRC on cloud

B. Modules

The Business Resource Center portal is divided into three major modules based on the types of user. The User flow diagram for each types of user is shown below.

user flow describes how a user will move through a website or an app. User flows are typically designed in the form of a flow diagram, a visual representation that shows the various website locations your users will visit along a particular path, from entry point to goal.

B.1. Admin Module

Administrator handles and monitors the activities of user for Business Resource Center. The flow diagram describes the activities that administrator performs.

B.1.1. Sign up

Sign up functionality for admin uses passport Facebook strategy. An Administrator signs up by allowing Business Resource Center to access his Facebook information. BRC accesses users email, profile link, user name and profile picture.

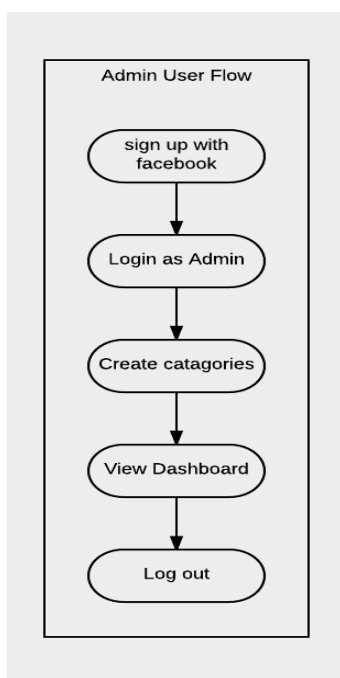


Fig 3.2. Admin user flow

B.1.2. Login as admin

A user needs to login with admin credentials to have authorization privilege provided by the portal.

B.1.3. Create categories

Once a user logs-in using admin privileges, he has authorization to create different categories. The categories will refer to the subjects on which students can provide the service. The businesses can see these categories and post their problem with respect to these categories.

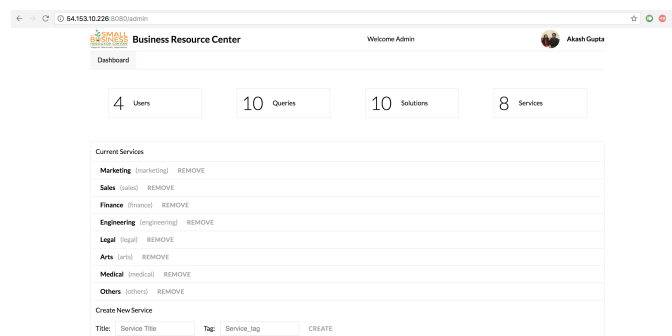


Fig 3.3. Admin Dashboard

B.1.4. View Dashboard

A dashboard consists of the number of users registered with Business Resource Center. These users can either be local businesses or students. It also consists of number of categories created. The dashboard tracks the number of Problems with the total number of solutions posted for these problems on the portal.

B.2. User Module – Students

Students are one of the prime users of Business Resource Center. Students can help the small business owners by providing solution to their problems. Below are the operations that students can perform on the portal.

B.2.1. Sign up

Sign up functionality for students uses PassportJS Facebook strategy. A student signs up by allowing Business Resource Center to access his/her Facebook information. BRC accesses users email, profile link, user name and profile picture.

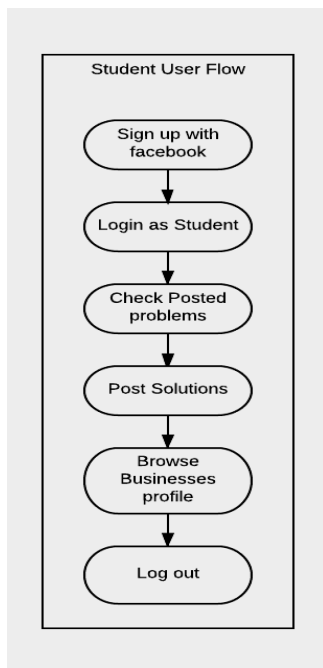


Fig 3.4. Student user flow

B.2.2. Sign in

A student can login to the portal using his/her Facebook account.

B.2.3. Resolve queries

After signing in to the portal, the students will have full access to all the problems posted by various small businesses. The students can scroll through the problems and can also provide their resolutions.

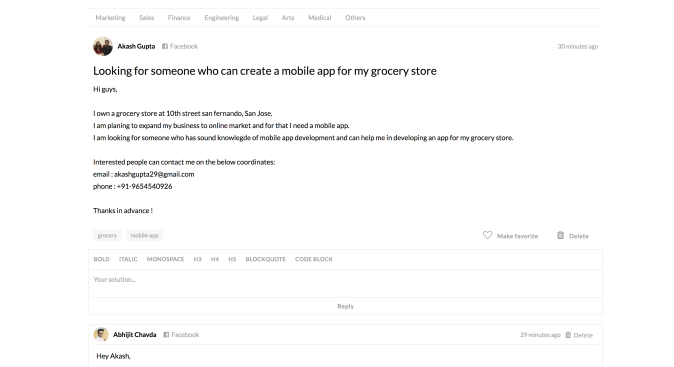


Fig 3.5. Posting response

B.3. User Module – Businesses

Small businesses are the other prime users of Business Resource Center. Small businesses can use the BRC portal in order to raise the problems faced by them. Below are the operations that small businesses can perform on the portal.

B.3.1. Sign up

Sign up functionality for small businesses use passportjs Facebook strategy. A company signs up by allowing Business Resource Center to access its Facebook information. Business resource center accesses local businesses' email, profile link, user name and profile picture.

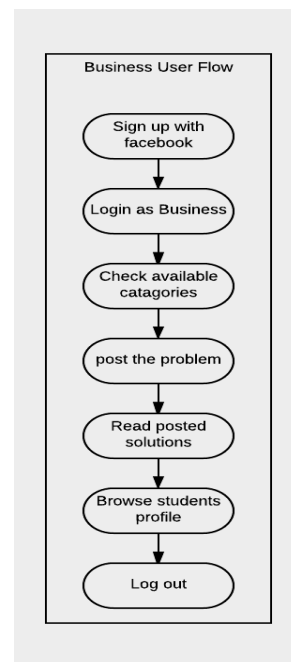


Fig 3.6. Business user flow

B.3.2. Sign in

A company can login to the portal using its facebook account.

B.3.3. Post problems

After signing in to the portal, small businesses can post their problems which students will have access to. These problems will be visible to anyone who has an account on BRC.

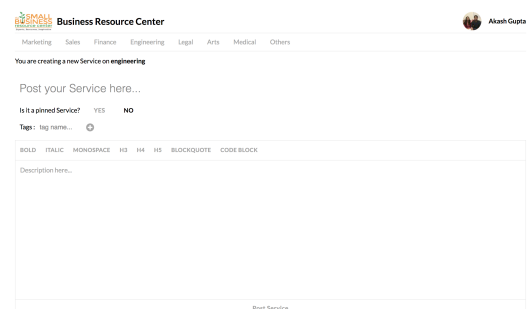


Fig 3.7. Posting problems

IV. CONCLUSION

In this paper, we proposed a Business Resource Center and tried to bridge the gap between Local businesses and Students of a University. This could disrupt the existing business models of Consultancies and have a great impact on the development of local businesses. Also, students gain practical experience and directly tackle the problems that businesses face day to day in their operations.

REFERENCES

- [1] <http://fresnostate.edu/adminserv/learning/documents/27.pdf>
- [2] <https://www.alz.org/library/downloads/buildingsmallresourcecenter2.10.pdf>
- [3] <https://pdfs.semanticscholar.org/47a0/994784765843ab70eb1779f5a8052ef3b2e2.pdf>
- [4] <https://www.gsb.stanford.edu/faculty-research/centers-initiatives/ces/contact/foster-resource-center>
- [5] <https://www.journals.elsevier.com/journal-of-business-research/>