

Alameda County

Program Title:

Alameda County Website – ACGOV Chatbot

Start/Launch Date of the Program: December 2022

Category: Web Services, E-Government and Mobile Apps

Department: Information Technology Department

Abstract of the Program

The Alameda County website, recognized for its innovation in how it provides information and government services, now has a Contact Us page Chatbot to help users get their questions answered even easier and quicker. Before the implementation of the Chatbot, users that visited the Contact Us page would either use links on the page to be directed to department or agency contact information or would send an email to get assistance with their questions. Those emails would go to the Information Technology Department (ITD) Web team, and they would forward the question to the department or agency that would best be able to assist.

It took a large amount of the staff time to aid, even answering common questions that are asked repeatedly. The other issue was that although emails were answered promptly, it was impossible to provide instant answers to even the simplest questions.

The ACGOV chatbot largely remedies this. By allowing people to access answers to their questions via the chatbot, their questions are answered more quickly and saves staff time. The chatbot was developed in collaboration with multiple departments and is continuously trained to stay current so it can provide assistance to Alameda County Website visitors.

The Problem or Need Addressed by the Program

The ITD Web team supporting the Contact Us emails was receiving dozens of emails every week through the website's Contact Us page. Often, answers were available on the website, but users just needed a little guidance in finding what they were looking for. The staff also recognized that the same questions were being asked repeatedly and knew there had to be a more efficient way to help users get their questions answered. The COVID-19 Chatbot that was implemented on the home page website during COVID proved to be very successful and became the blueprint for the ACGOV Contact Us page Chatbot.

Description of the Program

The genesis of an ACGOV chatbot can be traced back to the outbreak of COVID-19. The team was operating at peak capacity in addressing the surge of inquiries related to COVID-19. This circumstance prompted the requirement for a technological solution that would alleviate the pressure on our communication channels and enhance our constituents' response time.

The ACGOV chatbot leverages natural language processing (NLP) techniques to recognize keywords in users' queries and subsequently queries a related database to provide prompt and pertinent responses. Continuous training of the chatbot is necessary to ensure the responsiveness of the chatbot is current and up-to-date.

The ACGOV Chatbot was developed on Microsoft Azure using the project life cycle where a development team of three developers and five staff members participated in the following phases: 1) Planning: In this phase, the objectives of the chatbot project, and the stakeholders were identified. The requirements for the chatbot were gathered, including the use cases, features, and functionalities. A project plan was created, including a timeline, budget, and resources required for the project. 2) Design: In this phase, the chatbot's conversational flow and design were created, including the user interface and user experience. The chatbot's language model was developed, which included creating intents, entities, and dialogues. 3) Development: In this phase, the chatbot was built using a chatbot development platform on Azure. The chatbot's code was written. 4) Testing: In this phase, the chatbot was tested to ensure that it meets the requirements and works as expected. The chatbot was tested for usability, functionality, and performance. Bugs and issues were identified and fixed. 5) Deployment: In this phase, the chatbot was deployed to the ACGOV website. The chatbot was made available to end-users, and the stakeholders were notified of the chatbot's availability. 6) Maintenance: In this phase, the chatbot is monitored for issues, and updates are made as necessary. The chatbot is continuously trained with new data to improve its performance and accuracy. By following a project life cycle, the development of the ACGOV chatbot was structured, organized, and efficient, leading to the creation of a high-quality chatbot that meets the requirements and satisfies the stakeholders' needs.

ACGOV Chatbot overcame several challenges as it relies heavily on NLP to understand user input and provide meaningful responses. However, NLP technology is still evolving, and the accuracy of the chatbot's responses can be limited by the quality of the NLP algorithms used. Another challenge was user adoption. ACGOV chatbot was made easy to use and intuitive for users to adopt them.

Designing ACGOV chatbot that can effectively communicate with users and provide valuable assistance was a challenge. A team of developers brainstormed and designed an innovative chatbot. ACGOV Chatbot also understands the context of the conversation to provide accurate responses. In some cases, context can be ambiguous and difficult to interpret, which encouraged developers to be innovative to manage responses with 90%-95% accuracy.

Addressing these challenges required a holistic approach that included a deeper understanding of the user needs, business requirements, and technical capabilities. A successful chatbot development team was put together that had expertise in NLP, AI, machine learning, and software development, along with a well-planned project management process that addressed these challenges effectively.

Responding to Economic Downturn

Chatbots are one of the many solutions that Alameda County considered during an economic downturn. It simulated human conversation and automated certain tasks which helped the county reduce costs, increase efficiency, and improve customer service.

ACGOV Chatbot helped the county improve its online presence. By implementing chatbots on the county websites county increased citizen engagement as it was available 24/7, answered their questions, and provided personalized recommendations.

The Cost of the Program

The program was created in record time and that too on shoestrings. The cash outlay is the small amount for Azure cloud where the Chatbot resides; The program itself was developed in 40 hours of

FTE. The team continues to keep it updated with the latest information and trains the chatbot to stay current with any unique questions that might be asked.

The Results/Success of the Program

The success was Astounding! It saved a lot of staff time and has improved how the county provides services to our constituents. It increased civic participation and allowed the constituents to connect with the county in a modern way.

In a two weeks period before and after the implementation of the Chatbot, the number of emails (the old default route) the ITD Web Team received was reduced by 81%. All departments in the county appreciated ITD's effort in modernizing the way we communicate and the use of low code technology to be able to develop a system in a very short time as it not only saves time and money but also provides tremendous capabilities to the Alameda County Development Platform.

Worthiness of Award

Ease of working with the county for users with lightning-fast access to info they need urgently. Also, the program freed up ITD hours to support other areas such as Website, etc. Increased civic participation, was adopted easily, and above all, the program was developed totally in-house!

ACGOV chatbot is innovative as it utilizes innovative technologies and approaches like natural language processing, machine learning, and Azure's cutting-edge technologies to improve user experience. It solves the problem of responding in a timely manner and improves customer service. It is supported by a strong vibrant and engaged community of users and an active development team who keeps it updated and improves consistently to be able to stay current.

This chatbot has built a loyal user base and provides a high-quality user experience.

Supplemental Materials

The screenshot shows a web browser window with two tabs: "Department Directory - Keyword Se..." and "Contact Us | Alameda County". The address bar displays "https://acgov.org/government/contactus.htm". The website header includes the "acgov.org" logo and a "Translate" button. The main content area is split into two columns. The left column features a chatbot interface with a robot icon, a welcome message, and a list of service categories: Property Tax, Vital Records, Permits, Business Licenses, and Social Services. Below this is a text input field for a message. The right column contains a "Department Contacts" section with a link to a list of contacts, a "Be Social" section with Facebook and Twitter icons, and a "Technical Problem" section. A vertical "Website Survey" button is visible on the right edge. The Windows taskbar at the bottom shows the date and time as 10:54 AM on 3/29/2023, along with weather information (46°F, Rain) and various application icons.