



# COLORADO

Governor's Office of  
Information Technology



≡ myColorado Chatbot

State: Colorado

Agency: Governor's Office of Information Technology

Award Category: Emerging & Innovative Technologies

Project Dates: July 7, 2021 - Feb. 17, 2023

Contact: Brandi Simmons, Chief Communications Officer & PIO  
brandi.simmons@state.co.us | 720.601.5470

Olga Klinger, Senior Project Manager  
olga.klinger@state.co.us | 303.916.1612

## EXECUTIVE SUMMARY

As the State of Colorado's official mobile app™, myColorado provides a secure and convenient way for Coloradans to access important state services anytime, anywhere. Some of the key features are the Colorado Digital ID™, the digital COVID-19 myVaccine Record, Colorado Parks & Wildlife Digital Fishing, Combo and Small Game Licenses, and many more. myColorado can be downloaded from the Apple App Store and on Google Play.

The COVID-19 pandemic brought exponential growth for the myColorado mobile app. Through our technology, users could access their vaccination cards digitally and share their vaccination status via a QR Code when traveling or entering restaurants and public venues, which caused our user base to increase from around 100,000 to over one million. Due to this enormous growth, the need to handle customer inquiries and provide support in a timely manner, at the right moment, and directly from the mobile app became a must. Therefore, our technical subject matter experts decided to implement an Amazon Web Services (AWS) chatbot; a mobile-app-friendly technology that would allow Coloradans to chat with our customer support analysts through artificial intelligence (AI), paving the way for customized, engaging conversations.

The myColorado Chatbot is a fully managed and customizable artificial intelligence service made by AWS. It uses various services within AWS including Amazon Lex, AWS Lambda, AWS Kibana and Amazon Connect, and is integrated with AWS' Omnichannel Cloud contact center. Amazon Lex uses conversational artificial intelligence, which is a technology that combines natural language processing (NLP), machine learning, and large volumes of data on any given topic, to imitate human conversation. The myColorado Chatbot is able to recognize common speech, process text inputs, understand the intent behind the text input, and use AI algorithms to generate the most appropriate response in a natural, conversational way.\*



The myColorado Chatbot offers users multiple pathways to seek assistance depending on their personal preferences or needs (Chatbot, live agent chat, website, phone, email). The Chatbot handles about 30% of requests for help with common questions or problems; this in turn has reduced the wait time for those needing advanced technical support from a live chat agent, thus delivering a better customer journey for all.

## IDEA

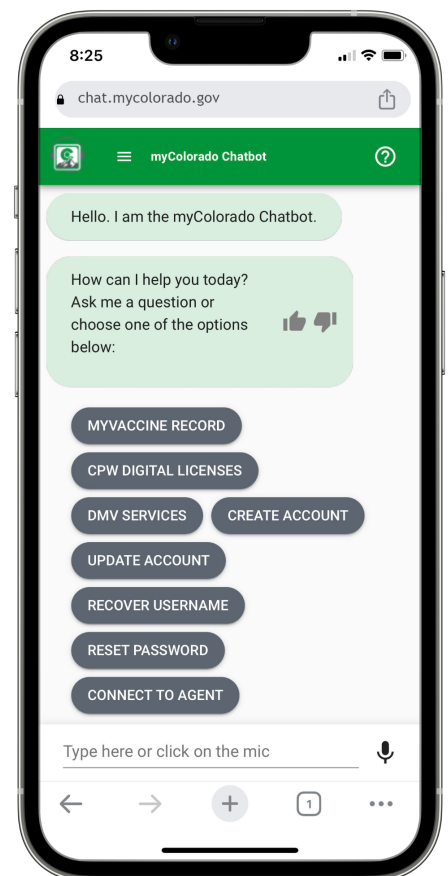
With the exponential growth of services available in the 24x7 myColorado app and with more than one million users, we needed to find a cost-effective way to provide after-hours support and alternatives to live-agents for the most commonly asked questions. With advances in artificial intelligence, our technical experts felt we were ready to use Chatbot and a tool we already had in hand— Amazon AWS.

## IMPLEMENTATION

The myColorado Chatbot was developed to answer and provide precise general assistance with myColorado app use, account setup or features including helpful information, contact information and next steps for other agencies or partners, including:

- Colorado Department of Public Health & Environment (myVaccine Record)
- Department of Revenue - Division of Motor Vehicles (Driver, ID and Vehicle Services)
- Department of Revenue (Sales Tax Lookup)
- Colorado Parks & Wildlife (Keep Colorado Wild pass, resident fishing, small game or furbearer hunting licenses, a combo license and/or all associated permits).

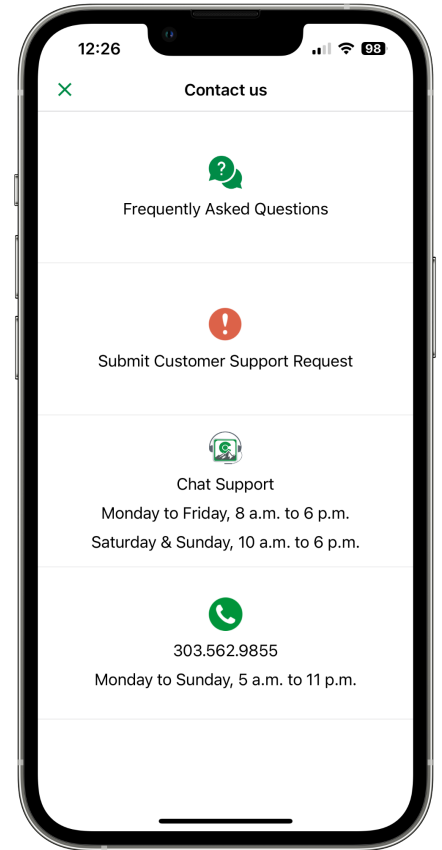
The myColorado team spent over a year gathering data, vetting the top user-asked questions, and common troubleshooting issues that our users encounter. Using customer support scripts and website information that we already had available, the team was able to narrow down the most common issues and formulate simple question-and-answer scenarios that a Chatbot could potentially manage. The team was ambitious and started with about 80 questions ranging from simple questions like “How do I reset my password?” to more complicated troubleshooting questions like “Why can’t I see my driver license?” or “What is XYZ error message?” The entire myColorado team, from developers to customer support analysts, spent several weeks extensively testing the questions to make sure our Chatbot was giving correct responses and providing full resolution to user inquiries. Our collective goal was to ensure the Chatbot could provide easy



solutions to low-level inquiries so the support team could focus on more complicated troubleshooting.

With machine learning, the myColorado Chatbot is able to continuously improve as users interact with it. As user input and data sets grow, the platform’s artificial intelligence gets better at recognizing patterns and improves the algorithm to give the best possible response to a user question. Providing one-stop, easy-to-understand, full resolution to common issues has allowed the myColorado support team to use their time more efficiently and provide attention to users experiencing more complex problems.

The myColorado Chatbot offers users multiple pathways to seek assistance depending on their personal preferences or needs (Chatbot, live agent chat, website, phone, email). The Chatbot handles about 30% of customer requests for help with common problems such as recovering accounts, asking routine questions about the app or seeking answers to common questions regarding the Division of Motor Vehicles, Department of Revenue, Colorado Department of Public Health & Environment, or Colorado Parks & Wildlife. This in turn has reduced the wait time for those needing advanced technical support from a live chat agent, thus delivering a better customer journey for all myColorado users.

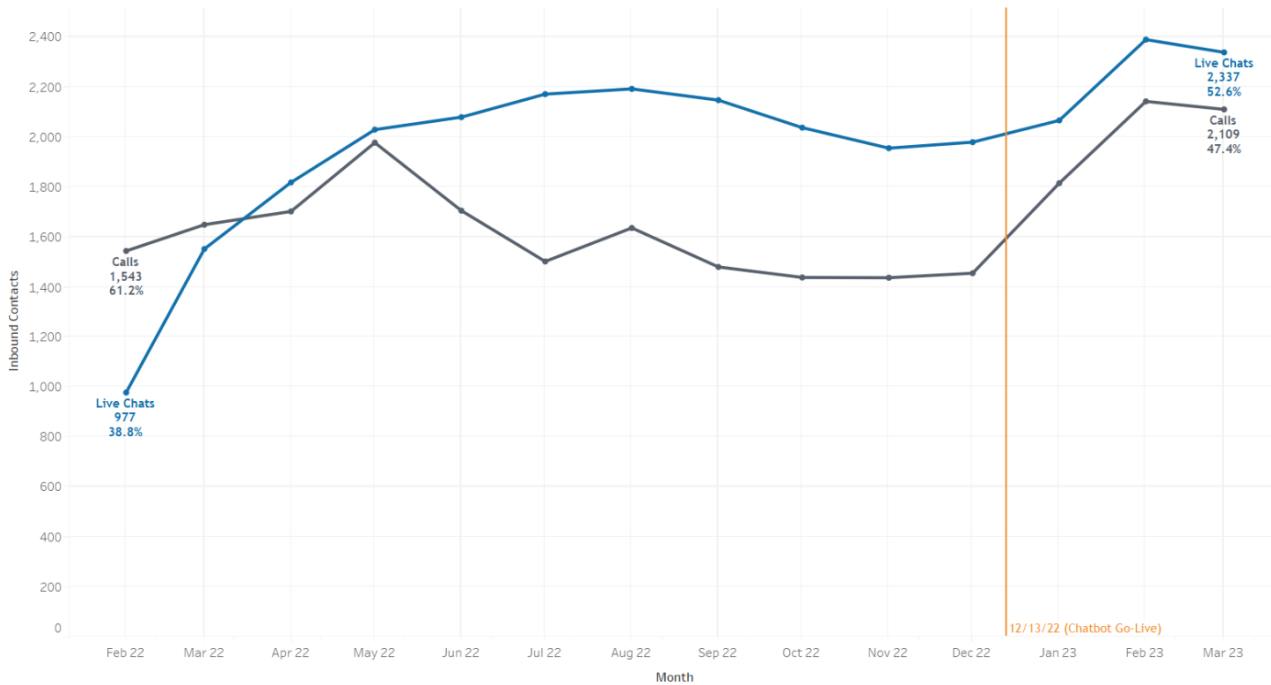


## IMPACT

### Inbound Volume: Calls vs. Live Chat

The following chart shows myColorado user preferences trending toward live chat over phone calls. As technology becomes more readily available, we are seeing our users respond positively to the Chatbot technology.

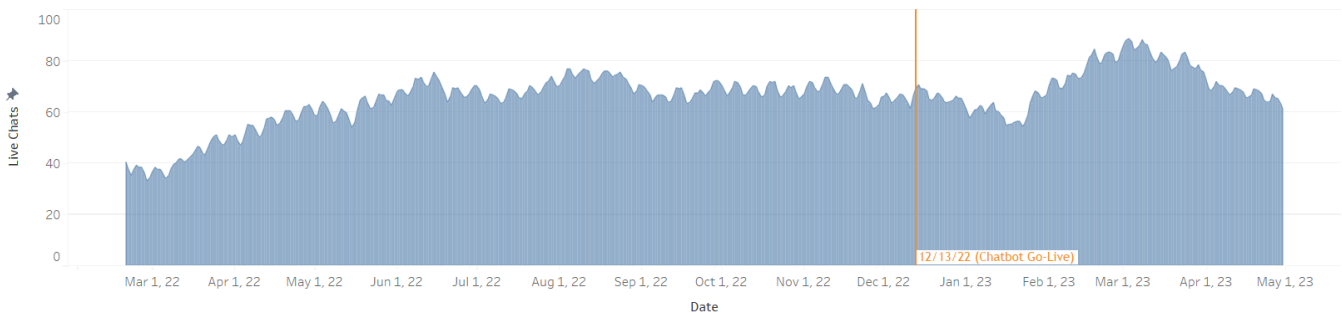
Service Desk - Monthly Inbound Contact Volume



### Daily Queued Live Chats

In this next chart we see a dip in volume of live chats immediately after implementing Chatbot on Dec. 13, 2022. After implementation, Chatbot was managing low-level inquiries, which resulted in fewer live-agent chats. There is an uptick around March 1, 2023, which is the beginning of fishing and hunting season; this a busy time for the customer support analysts as myColorado users can access their Digital Fishing, Small Game, and Combo Licenses in the app.

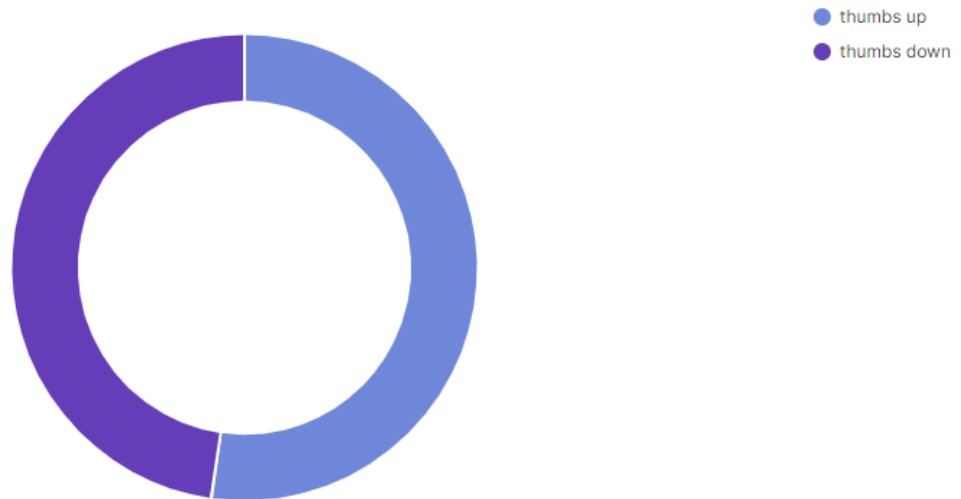
Daily Queued Live Chats - 30 day moving average



### Thumbs Up/Down Metrics

Users are able to provide direct feedback to individual responses from Chatbot. With this information, our development team is able to assess exact responses, review the full interaction between Chatbot and user, and then make adjustments to improve Chatbot’s interpretation of user inquiries so it can deliver the most accurate information.

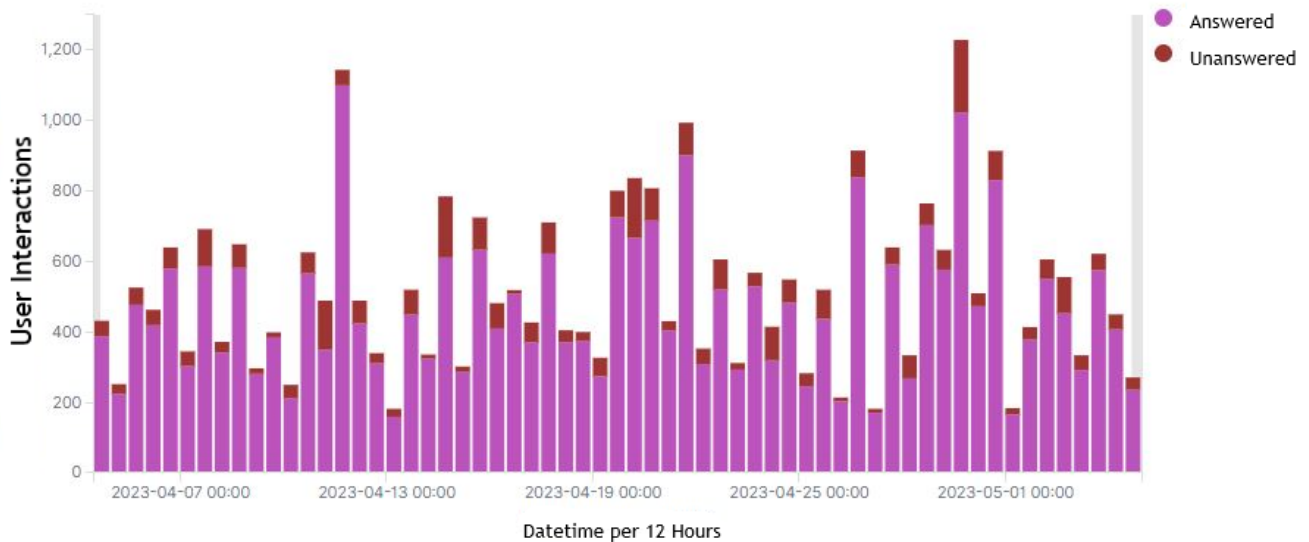
### Feedback by Thumbs Up or Down



### Answered/Unanswered Questions Metrics

The following chart shows the number of questions that were answered by Chatbot vs. the number of questions that were not answered; as you can see, it is trending heavily toward question resolution.

Answered vs. Unanswered Questions



### Word Map/Logged Utterances

The word map below shows the most common words and phrases users type in or click on while using the myColorado Chatbot.



Logged Utterances - Count

**\*Sources:**

- <https://aws.amazon.com/lex/>
- <https://aws.amazon.com/lex/features/>
- <https://www.ibm.com/topics/conversational-ai>

