

# UTAH.GOV AMAZON ECHO/ALEXA SKILL

Category: Emerging and Innovative Technologies

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## EXECUTIVE SUMMARY

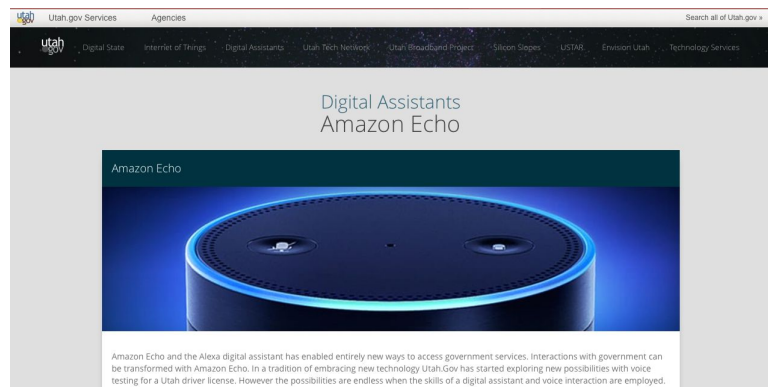
The Utah.Gov Driver License Amazon Alexa Practice Exam uses the Amazon Echo to help drivers practice for the Utah driver license exam by reviewing questions while talking directly with the Alexa personal digital assistant. It is the first state government voice activated review test of its kind.

Amazon Echo is a wireless speaker and voice command device. The device consists of a 9.25-inch tall cylinder speaker with a seven-piece microphone array. The device responds to the name Alexa. The device is capable of voice interaction, music playback, making to-do lists, setting alarms, streaming podcasts, playing audiobooks, and providing weather, traffic, and other services called skills.

Echo's voice recognition capability is based on Amazon Web Services and the Amazon common voice platform. Echo also has access to skills built with the Alexa Skills Kit. These are 3rd-party developed voice experiences that add to the capabilities of any Alexa-enabled device. The Utah.Gov Practice Exam allows new drivers to review questions by interacting with the Alexa digital assistant using voice controls.

Utah.Gov partnered with the Utah Department of Public Safety and Driver License Division to develop the practice exam for the Echo.

The voice activated practice exam is a new and convenient way for drivers to review the rules of the road in the comfort of their homes. For example, Alexa might ask, "When approached by an emergency vehicle, the driver must immediately..." and the correct response would be, "Pull to the right and stop." Test takers respond by voice directly to Alexa.



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## Exemplar

### Visionary

Amazon Echo and the Alexa digital assistant has enabled entirely new ways for access to government services. Interactions with government can be transformed with Amazon Echo. In a tradition of embracing new technology Utah.Gov is constantly exploring new possibilities with voice testing for a Utah driver license and other applications such as educational applications, renewal transactions, and certifications. However the possibilities are endless when the skills of a digital assistant and voice interaction are employed. Conversational interfaces have created new opportunities for state government to interact with and remind citizens of important deadlines, renewals, and other government business. Personal digital assistants such as Siri, Alexa, and Cortana could facilitate transactions at the point of reminder.

### Transformational



The Echo is an increasingly popular addition to homes across the country. Amazon's echo device accounted for 25% of all Amazon dedicated-speaker sales in 2015.

Digital Assistants transform interactions with government. The practice exam is easy to access and fun to use, but is especially useful for those with vision or muscular disabilities. Accessibility has always been a primary goal for all Utah.Gov services and applications. Conversational interfaces will open up the world to the disabled in ways GUI never could, and never will. In addition the ability to speak to your devices will break down the barriers to technology for individuals that are not tech-savvy.

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## Concept

### Problem

A written exam is required to receive a Utah driver's license. There have been a variety of methods for preparing for the exam, but there has not been an official way to orally review questions and oral reviews have [shown](#) to be an efficient way to improve comprehension. The

Alexa Practice Exam skill will now allow new drivers to talk with the Amazon Echo and practice the exam using voice controls.

Beyond the need for the written exam, stat governments are constantly looking for new channels to communicate with citizens in the most convenient way possible. Convenient communications facilitates easy transactions and increases compliance.

### **Solution**

Users access the skill by asking the Amazon Echo to, “open the Utah.Gov skill” and then asking, “Take a quiz.” Alex then asks a series of five questions and provides a list of possible responses. If the answer is correct, Alexa tells the user his response was correct and proceeds to the next question. If the answer was incorrect, Alexa gives the correct answer and proceeds to the next question.

As the residents of Utah are often early adopters of new technology, this service allows Echo owners to use the device for the benefit of new drivers.

### **Project Management**

The creation of the Utah.Gov Driver License Amazon Alexa Practice Exam was part of a six-week project to develop the skill. Staff spent 250 hours on this initiative brainstorming the solution, developing the code, and designing the and marketing solution.

### **Costs**

**Planned launch date:** April 20, 2016

**Actual launch date:** April 22, 2016

**Planned development time:** 6 weeks

**Actual development time:** 6 weeks

**Planned development costs:** No cost to the state

**Actual development costs:** No cost to the state

### **Evolution**



The Utah.gov skill was written with Java and utilizes Json during communication with the Alexa platform. Alexa devices can either be activated saying the wake word “Alexa” and then asking

Alexa a question, such as "Open Utah.Gov." Alternatively, pressing the talk or microphone button can awake Alexa. Echo is a cloud service and a hardware device.

### **Accessibility and Security**

**Usability-** The Amazon Echo utilizes voice controls to interact with the service. The team spent a lot of effort to utilize the natural language options that Amazon provides. For example, when the Skill asks a yes or no question, the system is programmed to recognize at least 10 variations of responses including: yes, sure, yes please, no, nope, no thanks... and interact accordingly depending on what question was asked.

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**Accessibility-** All Utah.Gov services are fully accessible regardless of device. We conduct in-house and independent audit tools to make sure all applications are accessible to users. By design, the Alexa Platform is voice activated. However, the quiz questions and answers are also displayed as text within the Alexa mobile application.

**Security and Privacy-**The state of Utah and Utah.gov take security very seriously especially protecting users personal identity and their financial information. This Utah.gov skill in Alexa does not utilize any personal or financial information.

Echo is a cloud service and a hardware device. The Utah.gov skill was written with Java and utilizes Json during communication with the Alexa platform.

### **Marketing**

The application has been largely marketed by a coordinated public relations campaign. In conjunction with the division and Utah.Gov social media posts and press releases are being distributed to local and national media outlets. Utah.Gov is coordinating press with Amazon and will coordinate social media posts to twitter, Facebook, and Google +. Amazon for its part is promoting the service with tweets and links to the videos created by Utah.Gov.

The videos were created to educate potential users about the service and allow them to understand the opportunities of the Amazon Echo and Alexa digital assistant.

Access the marketing videos at the following locations:

Utah Driver License Quiz promotion:

<https://www.youtube.com/watch?v=oCW6WF-8Y0>

Utah Facts on Amazon Echo:

<https://www.youtube.com/watch?v=Ka9ZPM7ajn8>

## Significance

### Beneficiaries

There are nearly three million residents of Utah. Current numbers for Amazon Echo owners and Alexa users are unavailable. However, The Amazon Echo was Amazon's best selling item over \$100 on Black Friday in 2015, and accounts for 25% of online speaker sales.

### Relevance

The Utah.Gov Driver License Amazon Alexa Practice Exam was created to provide Utah drivers the very best information and technology available to help them prepare for a Utah driver's license. Increasingly individuals are looking to new technologies and other mobile devices to interact with government and learn about vital information and records such as state issued licenses. While the practice exam is useful the ultimate vision is to extend the reach and convenience of how residents of Utah interact with state government. The implementation of assisted transactions and natural interfaces will help citizens across the state to successfully comply with state regulations.

### Strategy

Utah.Gov looks to leverage new technologies to better serve the residents of Utah. Digital assistants present an incredible opportunity for simplifying business with state government. Utah is always looking for new ways to integrate innovative digital solutions and move beyond how Utahns currently interact with government. Developing for new technologies enables Utah to stay ahead of the curve and be ready to adopt emerging trends.

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## Impact

### Savings

37,000 students are eligible to apply for new Driver Licenses each year in Utah. If the number of students passing tests increases by 5%, the state would not need to administer 1,850 tests a second time each year. Beyond the savings of each transaction the practice exam will help instructors save significant amounts of time as they can have a device help review with

#### average service costs



students. This aid will provide savings to the Driver License Division and the education system,

but Utah.Gov forecasts an increase in driver knowledge and ultimately road safety within the state, which would provide substantial cost savings to citizens.

Recently, the University of Utah has completed a study related to online services. The first study looked at the cost savings when filings are converted from paper based to online. They found that an average offline interaction cost the state \$17 while the online service cost the state just under four dollars. This study concluded that the state saves \$13 for every online transaction.

### **Measurement**

During just the first 5 days of launching, the application has been used 147 times without any publicity. Utah.Gov also plans to measure the increase in the number of students passing the test the first time.