“Alexa, turn up Open Data”

Using Alexa to help people use open data

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Outline

- Data
  - Project Octopus
  - DataHub
- Alexa
  - What can she do?
  - What kinds of questions do people want to ask?
- Building the Skill
  - Architecture
  - Project Sonar
  - Code example with associated data source
  - Skill Developer Console
- Implications of a Skill
- Lessons Learned
- Demo
Johns Creek

- Within Metro Atlanta area
  (30 minute drive to downtown Atlanta)

- Within Fulton County
  - Population: ~1,000,000

- Johns Creek
  - Incorporated in 2006
  - Population: ~88,000
  - Known for award-winning public schools, parks, golf
  - “Premier” residential community (80% res./ 20% comm.)
DataHub

...find data in the organization and make it available
DataHub

...build a public site to make discovery easy for citizens/staff

Search

Pages for Hot Topics
(with interactive Dashboards & Charts)

How-To Videos

Data Categories

Info for Developers
Alexa

...an AI tailor-made to help do stuff for people
### Alexa

*...out of the box vs. custom skill*

<table>
<thead>
<tr>
<th></th>
<th>Out of the Box</th>
<th>Custom Skill</th>
</tr>
</thead>
<tbody>
<tr>
<td>Where is Newtown Park?</td>
<td><img src="image" alt="General response based on a Google search that might be wrong" /></td>
<td><img src="image" alt="Specific, accurate response with additional information" /></td>
</tr>
<tr>
<td>What is the zoning of...?</td>
<td><img src="image" alt="General response based on a Google search that might be wrong" /></td>
<td><img src="image" alt="Specific, accurate response with additional information" /></td>
</tr>
</tbody>
</table>
Alexa

...Project Sonar

User’s Smartspeaker

AWS Lambda Function

Project Sonar
(Opensource Esri R&D project with custom code added)

Johns Creek DataHub

esri

Johns Creek

be the exception
Alexa

...Project Sonar

JavaScript-based code

Chat bot for use in Alexa, Slack, and Facebook

<table>
<thead>
<tr>
<th>File</th>
<th>Modification</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>images</td>
<td>Renamed project to Sonar</td>
<td>Mar 3, 2017</td>
</tr>
<tr>
<td>lib</td>
<td>Finished adding initial support for context &amp; tracking</td>
<td>3 months ago</td>
</tr>
<tr>
<td>.gitignore</td>
<td>Updated documentation to help with new user setup</td>
<td>9 months ago</td>
</tr>
<tr>
<td>LICENSE</td>
<td>Initial commit</td>
<td>1 year ago</td>
</tr>
<tr>
<td>README.md</td>
<td>Added NYC datasets and city conversion</td>
<td>3 months ago</td>
</tr>
<tr>
<td>index.js</td>
<td>Finished adding initial support for context &amp; tracking</td>
<td>3 months ago</td>
</tr>
<tr>
<td>package.json</td>
<td>Added context storage based on Southbound</td>
<td>3 months ago</td>
</tr>
<tr>
<td>last.js</td>
<td>Added NYC datasets and city conversion</td>
<td>3 months ago</td>
</tr>
</tbody>
</table>

Sonar

Information should be easily accessible and ubiquitous. Often data requires complex user experiences through limited devices. Instead, what if data can be conversational through commonly used communications tools like Facebook Messenger and Amazon Alexa voice recognition.

Sonar bot provides a natural language interface to local government open data and demographic services that helps people ask questions of their community.

This project is a prototype concept that is still evolving. It currently supports:

- Facebook messenger
- Slack
- Alexa Echo Skills
const client = require('./geoservices');
const util = require('./util');
const utilQuery = require('./util_query');

function policeActivity(locationString, distanceValue = 2, distanceUnits = 'miles') {
    const meters = util.distanceToMeters(distanceValue, distanceUnits);

    return new Promise((resolve, reject) => {
        // 1. Geocode
        client().geocode({ 'Single Line Input': locationString, outSR: '4326' }, (err, result) => {
            if (err) {
                console.error('ERROR: ' + err);
                reject(err);
            } else if (result.candidates.length > 0) {
                // console.log('got x and y:', result.candidates[0].location.x, result.candidates[0].location.y);
                // 2. Create buffer based on distanceValue and distanceUnits
                const bufferGeometry = util.bufferPoint(result.candidates[0].location.x, result.candidates[0].location.y, meters);

                // 3. Do query
                utilQuery.queryPoliceIncidents(bufferGeometry).then((queryResult) => {
                    // console.log('queryResult', queryResult);
                    resolve('Over the past six months, there have been ' + queryResult.count + ' police calls for service within ' + distanceValue + ' ' + distanceUnits + ' of ' + locationString + '.');
                });
            } else {
                // probably could not geocode the address
                resolve('I either could not find that address, or the address is out of our city boundary. Please try again.');
            }
        });
    });
}

module.exports = policeActivity;
Alexa

...get data from the DataHub

We could go to the page that has this data, download it or add it to a map, filter it, and select it

...or...

Ask Alexa
Alexa

...build intents with utterances and slots
Alexa

...test, test, then test again...

ask the city of johns creek what is the zoning of 10700 abbotts bridge road?

The current zoning of 10700 abbotts bridge road is O-I (Office - Institutional) which was approved on 2001-10-03
Alexa

...ready to launch? Not so fast...

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**English (US) Store Preview**

Tell us how your skill should appear to English (US) customers.

**Public Name**

City of Johns Creek

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**One Sentence Description**

Explore the City of Johns Creek, Georgia in a new way using your voice.

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**Detailed Description**

Explore the City of Johns Creek, Georgia in a new way using your voice. You can ask about zoning of properties, road closures and construction, police and fire activity, and more all by simply saying "Ask the City of Johns Creek..." This new service uses information available in the City's DataHub (open data portal) which can be accessed from anywhere by visiting: DataHub.JohnsCreekGA.gov

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**Example Phrases**

**Example Phrase 101**

View samples to help guide you when creating phrases.

> More

1. Alexa, ask City of Johns Creek for the current zoning of the property at 5800 State Bridge Rd
Lessons Learned

...it’s not all fun and games

- Changes to your open data site impact your skill
- Expect the certification process to be difficult and lengthy
- People unfamiliar with Alexa will ask A LOT of questions and will be skeptical
# Tracking Use

## Summary

<table>
<thead>
<tr>
<th>Skill Stage</th>
<th>Time Interval (UTC)</th>
<th>Aggregation Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development</td>
<td>Today</td>
<td>Hourly</td>
</tr>
</tbody>
</table>

### Sessions

- **Total for Custom Range**: ▲ 59
  - previous 60 days had 0
- **Maximum per Hour**: 16
  - on 05/15/2018 at 15:00 UTC
- **Average per Hour**: 0.1

### Unique Customers

- **Total for Custom Range**: ▲ 1
  - previous 60 days had 0
- **Maximum per Hour**: 1
  - on 05/17/2018 at 21:00 UTC
- **Average per Hour**: 0

### Utterances

- **Total for Custom Range**: ▲ 63
  - previous 60 days had 0
- **Maximum per Hour**: 17
  - on 05/15/2018 at 15:00 UTC
- **Average per Hour**: 0.1

### Intents

- **Other**: 15.7%
- **Zoning**: 25.5%
- **FAQRecParksGenera**: 7.8%
- **Jobs**: 7.8%
- **aaa_temp**: 7.8%
- **Waze**: 9.8%
- **CalendarPublicMeetings**: 13.7%
- **CalendarEvents**: 11.8%
Implications

Increased Accessibility of Data

Proves Utility of Open Data
Demo

Alexa, Ask the City of Johns Creek...

...what is the zoning of 5800 State Bridge Road?

...what are the current traffic conditions in Johns Creek?

...what jobs are available?

...when is the next city council meeting?
Questions?

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