Project **Sidewalk**: Characterizing Physical World Accessibility at Scale

WalkHackNight | February 8, 2017

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Project **Sidewalk** was here in 2015!

Kotaro Hara
Graduated in 2016!

Manaswi Saha
Me!
Quick Recap
30.6 million U.S. adults with mobility impairment
15.2 million use an assistive aid
Missing Curb Ramp

Obstacle

Surface Problem

No Sidewalk
The problem is that there are few mechanisms to determine accessible areas of a city *a priori*.
The lack of street-level accessibility information can have a significant impact on the independence and mobility of citizens.

cf. Nuernberger, 2008; Thapar et al., 2004
OUR VISION

Design systems that transform the way accessibility information is collected and used.
Access Score in Action

Find out about neighborhood accessibility of DC! Here, accessible neighborhoods are colored in **green** and inaccessible neighborhoods are colored in **red**.

If some accessibility features affect your mobility more than the others, use the slider below to adjust the significance of each accessibility feature!

Note, we don’t have enough data to reliably calculate Access Score for some neighborhoods (yet). Wanna help us improve it? Participate in accessibility audit!

<table>
<thead>
<tr>
<th>Significance</th>
<th>100</th>
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</thead>
<tbody>
<tr>
<td>Curb Ramp</td>
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<tr>
<td>No Curb Ramp</td>
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<tr>
<td>Obstacle</td>
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</tbody>
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**Proof-of-Concept Application of Accessibility Data**
Accessibility-aware Navigation
These applications have huge data requirements.
Where is this data going to come from?

These applications have huge data requirements.
Our Approach: Remotely collect street-level accessibility information from Google Street View (GSV) using crowdsourcing and computation
Developments since 2015
PROJECT SIDEWALK
New Branding!
GET /v1/access/*

Accessibility Data
Serving APIs

Volunteered Accessibility Data Collection

http://sidewalk.umiacs.umd.edu

Help us make sidewalks more accessible for everyone

Participate

GET /v1/access/*
Accessibility Data Serving APIs
Help us make sidewalks more accessible for everyone

Participate

Use our tool to label accessibility attributes in

The collected data is stored on our server and

The data will be used to enable new accessibility features.
Deployed since Fall 2016!

>64000 labels collected
22572 problems points identified
44% of DC covered ~ 463 miles!
475 users contributed, 277 registered users
Future Work
Cover 100% of DC

Build *amazing* accessibility-aware tools

Integrate automated methods for labeling data  
(psst..remember Tohme?)

Continue to make the tool AWESOME! 😊
Thank you!

Feel free to contact us or contribute!

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