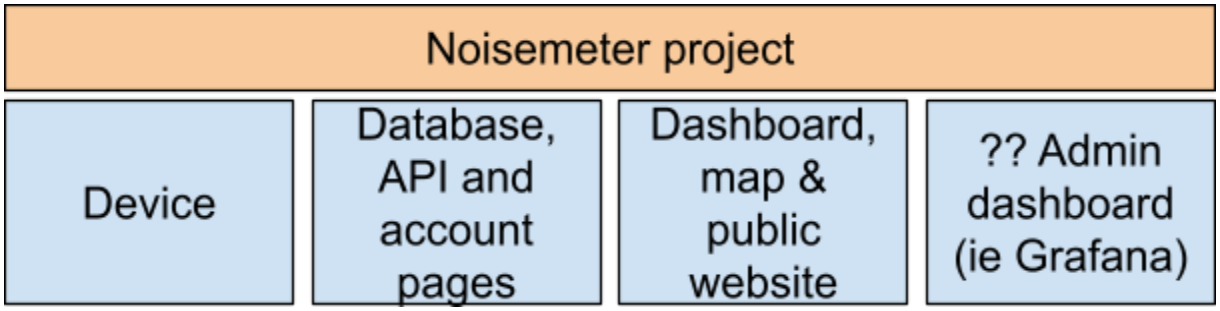
Noisemeter project: Product Design Document: Website/Dashboard

Status: Updated Mar 16th 2024 based on discussion and agreement on Mar 12th

Context

The dashboard is one component of the Noisemeter project.



The dashboard component will include:

- The interface which visualizes data from the noisemeter database
- A public website for the noisemeter project
- A map interface indicating the locations of noisemeter devices

By “dashboard and website” we mean all of the items above.

Goals

Noisemeter project purpose, values and mission are here.

Dashboard goals:

1. Enable people to find, see and understand noise data (collected by devices).
2. Enable people to use noise data (collected by devices) for advocacy for policy change and better enforcement.

People & roles

As a volunteer project, we don’t use roles much – we value the curiosity that everyone brings, and the contributions they make. Still, key decisions are made in consultation with people who have made extraordinary contributions to the project:

- Dashboard lead: Daniel Soukup

- Back-end lead: Mitch Bechtel
- Device lead: Clyne Sullivan
- Noisemeter project lead: Gabe Sawhney

Links

- Dashboard: https://dashboard.tracket.info/locations
- Dashboard GitHub repo: https://github.com/danieltsoukup/noise-dashboard
- Dashboard technical overview board [architecture, DB outline]: https://www.figma.com/file/jZWxG4VOAATuRVIhlarWBt/NoiseMeter-Dashboard-%26-DB-Ideation?type=whiteboard&node-id=0-1&t=CzadSIhrSvoD0vaW-0
- DB API docs: Noisemeter project API endpoint documentation (beta)
- Competitor analysis: NoiseMeter - Competitor Analysis
- Slack channel: #proj-noisemeter (civictechto.slack.com)

Research

Currently

So far, research has been informal. The current dashboard design is based on our assumptions of user needs, based on ourselves as users.

Users

We envision five categories of users:

1. Administrators/volunteers : care about the operation and development of the system
2. Current device owners : care about the data collected by their device, and the operation of their device
3. Urban noise reduction advocates : care about using collected data to advocate for better policy and enforcement
4. Prospective device owners : people who are deciding about whether to purchase a device
5. Prospective volunteers : people who are deciding about whether to contribute as volunteers

User category	**Which components(s) they use, and how**
1. Administrators/volunteers	• Admin dashboard, to see system status

2. Current device owners	● Dashboard, to see data from their devices ● Account page, to see and edit info about their devices
3. Urban noise reduction advocates	● Dashboard, to see data from devices and aggregate info
4. Prospective device owners	● Public website, to learn about the project and inform their purchasing decision ● Dashboard and map, to learn about the project
5. Prospective volunteers	● Public website, to learn about the project and inform their volunteering decision ● Dashboard and map, to learn about the project

Digital Products

1. Dashboard for -- Admins
2. Dashboard for -- Device Owners
3. Public Website for -- Advocates, Prospective device owners, Prospective volunteers

User stories

Note that these are general, not specific to the dashboard.

As an administrator, I want to:

- See if the system is working
- See which devices have not reported data recently
- Explore the data collected from all devices

As a current device owner, I want to:

- See if my device(s) is working
- See the data collected by my device(s)
- Understand if the noise levels captured by my device represent safe levels or not
- Get notified if my device goes offline
- See the version of the board, just 1 line.

As a urban noise reduction advocate, I want to:

- See where the devices are located
- See the data
- Look for patterns in the data, based on (for example) location, time of day, day of week, month of year, etc.

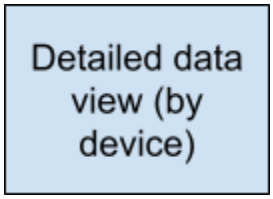
As a prospective device owner, I want to:

- Understand what the project is
- Understand the capabilities of the device
- Learn what I should know to inform my purchasing decision

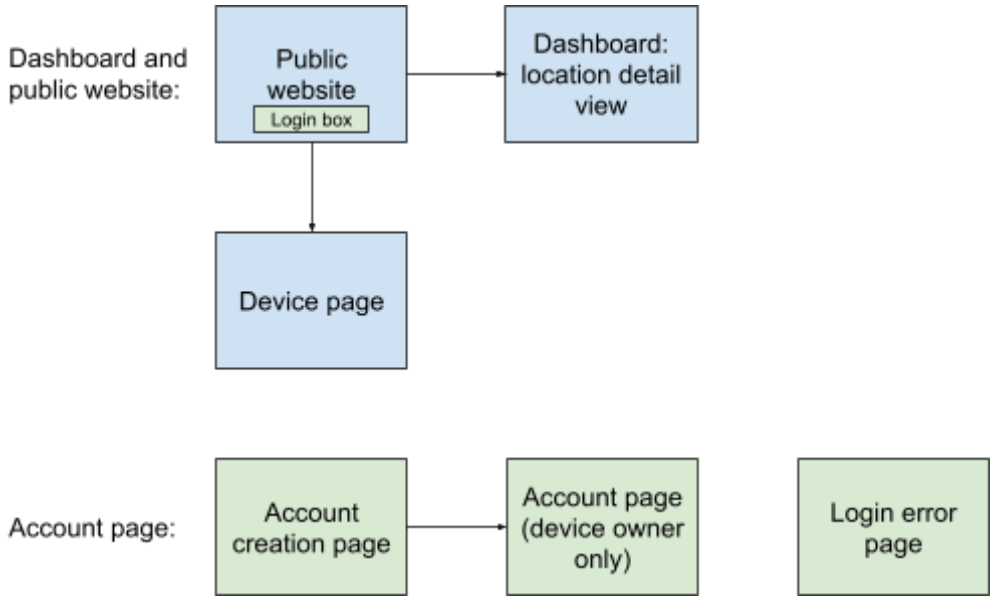
Pages

Alpha (current)

One page:



Beta



Roadmap

These correspond to the milestones here.

Alpha (current):

- Detailed data view:
    - User can select which device to view data for
    - Detailed data (max 7 days) is displayed in an interactive line graph, with min and max values plotted
    - A time picker shows a low-resolution display of *all* available data, so the user can pick a different period for the detailed view
    - Some aggregate data is also included

Beta:

- Dashboard, map and public website:
    - Detailed data view (by location):
        - User can select which *location* to view data for
        - Detailed data (max 7 days) is displayed in an interactive line graph, with min and max values plotted
        - A time picker shows a low-resolution display of *all* available data, so the user can pick a different period for the detailed view
    - Map & aggregate data view:
        - Map indicating locations of devices
            - Clicking on a location takes you to the detailed data view for that location
        - *Basic* aggregate data is also displayed (number of active devices, avg noise level, etc.)
        - Maybe this is also the main webpage for the project!? (In which case it'll have some static content too, of course.)
    - Public web page:
        - Static text about the project
        - Embedded map or link to map/dashboard
        - Info about purchasing a device
        - Info about donating to the project
        - Info about volunteering on the project
        - Privacy policy
        - Contact information
- Account page:
    - Login page:
        - Form for user to enter login info
        - This may not be a page on its own; it might just be an element on all/most pages
    - Account page:
        - Device owners can see and edit settings for their devices

        - See https://miro.com/app/board/uXjVNwNt7UU=/?share_link_id=690193010927

Later:

- Additional data views
- Additional aggregate data views

Content

Website: main page

- Mission statement:
    - We are collecting data about urban noise, in order to better understand its prevalence and to enable better advocacy. Join us!
- What's the problem with urban noise?
    - [3 sentences on the health impacts of exposure to urban noise]
    - [link to more info; NMNT?]
- How we collect urban noise data
    - [image of device]
    - We've designed a device that monitors noise levels 24/7, and a dashboard that publishes the data online.
    - High-accuracy noise monitoring devices cost hundreds or thousands of dollars. Our devices don't provide comparable accuracy, but they're good enough for residential use, to be able to notice patterns in the data. And they're affordable enough to put them within reach for people who would never consider a high-end device.
    - Read more about the device (link to device page)
- LIVE aggregate data
    - Number of devices reporting today
    - Total number of hours of noise monitoring (# rows/12)
    - % of readings which are above "safe" levels [with reference to explain "safe"]
- We're all volunteers
    - Everyone involved donates their time, because we're all concerned about the health impacts of urban noise, and believe the issue deserves more attention.
    - This started as a project at Civic Tech Toronto. We price the devices to cover our costs. Our finances are published openly [link].

Website: device page

- Small, simple and subtle.
    - We designed this device to do just what we need: monitor sound level.
- What it needs
    - USB power, a wifi network to connect to, and to be attached securely
- Things to consider
    - Where will you put it?
    - How will you attach it?
    - Where will you plug it in?
    - How long of a USB cable do you need?
- Privacy
    - Data from all devices is published on our dashboard. Ownership information and precise location are not published.
- Purchasing, delivery and accessories
    - Each device is Cdn$50. Plus shipping if applicable.
        - Everyone involved is a volunteer, and the price of the device is set to cover our costs.
        - Since we're a small operation, we don't charge HST.
    - Device doesn't include USB power supply or cable (since it's likely you already have these in a drawer somewhere), but you can add these to your order if you need them.
        - USB power supply (used): Cdn$8
        - USB cable:
            - 6'
            - 10'
            - 20'
            - 26'
- Warranty and liability
    - ** look up legislation about this!
    - This is not a consumer electronic device. This is an experimental kit, which you use as your own risk, as a data contributor to the project. (***)