

# Boost the c3nav Editor: Smart Tools for Indoor Maps

## Challenge description

Imagine making indoor navigation smarter and smoother - not just for end users, but for the map creators behind the scenes.

Your challenge is to build editor tools that simplify and speed up the creation of indoor maps using **c3nav** (<https://github.com/c3nav>), an Open Source indoor navigation system designed for real-time, multi-floor guidance in complex buildings (think campuses, conference venues, ...). It's what helps people find their way - but it needs a hand behind the curtain.

Right now, the mapping interface in c3nav can be tricky: every wall, stair and space must be drawn manually, with pixel-perfect precision. You're invited to prototype an **editor helper** to assist with these specific tasks:

### 1. Stairway creator

Mapping staircases manually is slow and error-prone. Each step needs to be drawn individually, and edges must sit outside the "stairway" polygon.

#### Your mission:

- Develop a tool that lets editors place equally spaced steps with aligned vertices, quickly and cleanly
- Ideally support both "U" and "C" shaped staircases

Think of it as a smart, visual stair stepper.

### 2. Snap to edges

In c3nav, every space must be separate — but currently there's no smart snapping. That means a lot of fiddly pixel work.

#### Your mission:

- Automatically snap new spaces (or obstacles like walls) to nearby edges while drawing
- Optionally allow snapping to the underlying base map too

Smooth alignment. Less frustration.

### 3. Level cloning

Mapping a multi-floor building? Right now, you have to redraw every room, wall and shape from scratch on each level.

**Your mission:**

- Enable editors to **clone selected map items** to another floor
- Ideally include an option to **keep cloned items in sync** across levels

It's like copy-paste, but smarter.

#### **4. Indoor Data Integration from Open Data Hub**

Bring real-time environmental data into the map! The Open Data Hub provides an open dataset on **Indoor Environmental Monitoring** for rooms in NOI Techpark.. It includes temperature, humidity, and CO<sub>2</sub> levels — valuable for air quality monitoring, energy optimisation, and health impact analysis.

**Your mission:**

- Retrieve data from the **Indoor Environmental Monitoring dataset** (<https://databrowser.opendatahub.com/dataset-overview/fad6ba99-2f71-425a-8466-10c5d78475f6>)
- Display the values directly on the map, in their corresponding rooms

Turn static maps into live, data-powered environments.

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### **Judging criteria**

Your solution will be judged based on:

- **Usability & Simplicity** → Is it intuitive and pleasant to use?
- **Integration with c3nav Editor** → How feasible is the implementation? How well does it fit the existing system?
- **Project Guideline Fit** → How closely does it follow the technical and design spirit of the c3nav project?

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### **Why it matters**

By taking on this challenge, you're not just solving a technical problem. **You're actively contributing to the Free and Open Source Software (FOSS) community**, helping improve a tool that's freely available to the world. This is about empowering everyone - from developers to institutions - to build better, open indoor navigation systems.

Make c3nav easier to use — and help mappers map the world better.