HACKATHON

Field Mapping Task-Splitting Algorithm

May 20 & 21, 2023

Organized by

naxa

KLL

NEPAL GEOMATICS ENGINEERING SOCIETY
Minbhawan, Kathmandu

Open Mapping Hub
ASIA-PACIFIC

HOT FMTM

Field Mapping Task-Splitting Algorithm

May 13 & 14, 2023

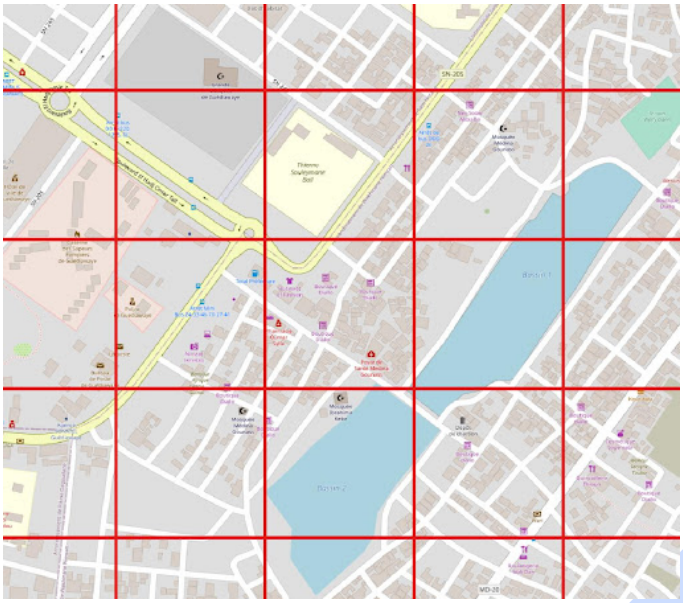
Introduction

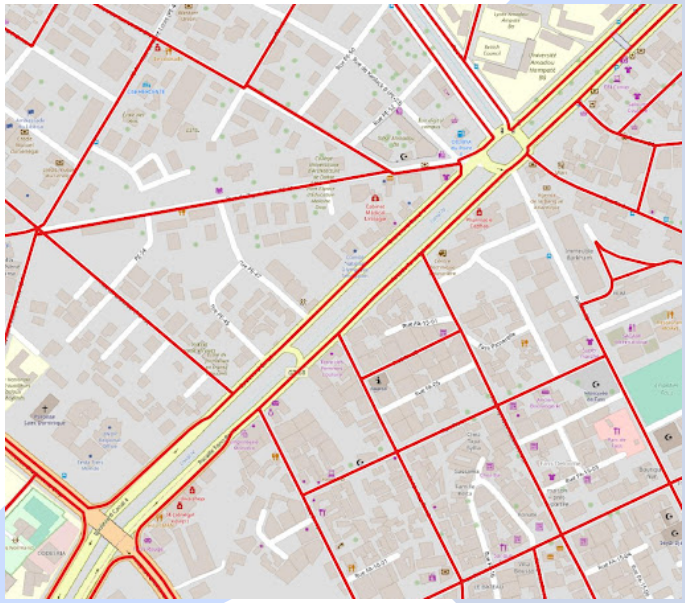
OpenStreetMap is an open mapping platform built by a community of mappers that contribute and maintain data about roads, trails, cafés, railway stations, and much more, all over the world. Contributors can simply sign up and start digitizing ground objects over aerial imagery and tag them with appropriate information on their possible types. Humanitarian OpenStreetMap Team (HOT) made remote digitization work more organized and coordinated through its Tasking Manager. However, field mapping is another problem to solve.

To help coordinate field mapping activities, HOT is now developing a set of tools to facilitate a Tasking Manager-like workflow using OpenDataKit. You can read about the project on the HOT blog. The prototype code for the project is here on GitHub.

The Challenge

Choosing how to divide an area into tasks for field mapping is an interesting challenge. The HOT Tasking Manager for remote mapping divides an area of interest into a grid of squares. Remote mappers can use their computer screens to float virtually in the air above their task area, but field mappers must physically visit every point in their task area! Crossing rivers, railways, and trunk roads is inconvenient and sometimes dangerous. Therefore a grid of squares—which ignores physical access issues—is not great for field mapping.





The squares on the left require field mappers to cross rivers and highways! The divisions on the right, based on the layout of the streets, are much more practical, but we don't yet have a way to automate creating them.

We would like to evaluate different automated strategies to divide an Area of Interest into individual tasks for field mapping. This problem really has two distinct parts

1. What are the most convenient shapes for subdivisions for given types of field mapping tasks?
2. How can we automate sub-division into those shapes, in a way that works and produces a reasonable result for many different settings?

Who we are looking for

We are looking for **software developers/engineers** who have a good command of spatial **database management**. Specifically, **PostgreSQL** & its **PostGIS** extension is going to be the database technology we will be using.

Prizes to Winners

- The winning team of the hackathon will receive a cash prize of NPR 30000/-
- The runner-up team will receive a cash prize of NPR 15000/-
- The most creative idea will receive a cash prize of NPR 10000/-
- One participant will get a 3 months paid internship at NAXA

All participants get **free lunch, coffee, drinks,** and **goodies** and most importantly a **great network of people to connect with**.

Expected Participation

- **15+ teams** comprising open geospatial technology practitioners and enthusiasts potentially between the age group of 18 to 40.
- **100+ Attendees** that are keenly interested in geospatial technologies, open software, open data, and most importantly networking with like-minded people.
- **10+ Judges & Mentors** who will be highly professional individuals with proven experience and technical expertise in geospatial technology.
- **45000+ Social Media Outreach** is expected from the pre-event and post-event promotions on social media.

How can you support us?

We are happy to brand you as one of the supporters of the event
if you are willing to provide one or multiple of the following

Venue

If you are a hotel, college, or venue provider, you can support us with an adequate venue where we can host the program for two days

Internet

If you are an ISP, you can support us with a good bandwidth of internet connection for the hackathon

Goodies

If you have products that you want to give away to our participants and winners.

Media Coverage

If you are a media house and want to promote the event through your media.