University of Pretoria YouthMappers empowering South African youth through geospatial data
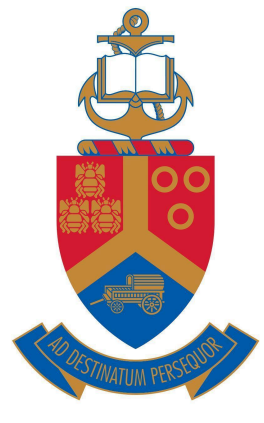
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What is OpenStreetMap?

OpenStreetMap (OSM, www.openstreetmap.org) is an openly-licensed geospatial database created and edited daily by volunteers worldwide. The data that is collected in OSM can be used for a wide variety of applications, most notably it has been used to aid in disaster response. With OSM, communities are able to map themselves and valuable information that can be used to communicate with local authorities. OSM is used in various humanitarian projects worldwide under the guidance of the Humanitarian OpenStreetMap Team (HOT, www.hotosm.org) and the Missing Maps project (www.missingmaps.org), such as mapping during disaster relief operations or malaria elimination campaigns.

Why is OpenStreetMap data important to the youth?

This data can be used by various stakeholders such as local government or non-governmental organizations to make informed decisions about the local community. This aspect is important for the youth who want to drive change in their community. By mapping their own community, the youth can better understand their communities and effectively communicate their aspirations to decision makers, such as their local politicians and health care planners, using the data they collected.

What is a mapathon?

A mapathon is a collaborative effort, usually performed by groups of people who aim to collect specific map data through remote mapping in places where OSM data is scarce or non-existent. These mapathons attract volunteers from all over the world and from different backgrounds meaning that students with a geography background aren't the only students who participate in these mapathons. Numerous mapathons are held monthly to assist with the mapping efforts for various humanitarian projects.

Who are the YouthMappers?

YouthMappers (https://www.youthmappers.org) is a global initiative where university students from all over the world are actively engaged in OSM-based collaborative mapping efforts such as mapathons. The YouthMappers network relies on open-source geospatial software which provides mature solutions to address the challenges of our society and is the key to empowering students to work with OSM and geospatial data as cost is not a barrier to entry. YouthMappers currently have 212 chapters around the world in 50 countries worldwide.

UP YouthMappers are the YouthMappers chapter at the University of Pretoria in South Africa and it is an inaugural chapter. UP YouthMappers consist of students ranging from first year all the way to Masters level and they are situated in the Department of Geography, Geoinformatics and Meteorology.

Mapathons

Over the years, the University of Pretoria (UP) YouthMappers chapter has hosted and participated in a number of mapathons. With an average of 30 participants per mapathon, a lot of data is added to the OpenStreetMap database on an annual basis. Many of these mapathons are held in response to global disasters or upon request from third parties such as Family Medicine UP.

Some of the more notable mapathons include:
- Two COVID-19 mapathons to map health care facilities in their local neighbourhoods and to map an informal settlement in partnership with the UP Department of Family Medicine.
- Mandela Day Mapathons where HOT Tasks were mapped.
- Mapping of the Western Cape coastline of South Africa in an effort to boost the blue economy.
- Mapping of the formal and informal settlements in and around the areas of Mamelodi and Soshanguve in Pretoria East.

Before 8-hour mapathon of Mossel Bay, South Africa

After 8-hour mapathon of Mossel Bay, South Africa.

8000+ buildings were added.

School Activities

In conjunction with the mapathons, the University of Pretoria (UP) YouthMappers chapter participates in community engagement events with local school children to teach them about the field of geoinformatics and how they use it in their every day life. During these events, the school children are introduced to either a basic desktop exercise with geospatial information, such as performing an environmental impact assessment to determine where the mine tailings impact water resources, or they are shown a real world example of the use of geospatial information, such as the popular Dr. John Snow Cholera outbreak scenario. For these exercises, the school children are usually divided into groups depending on the number of computers available and the number of pupils. In some cases, the teachers have used the maps that were generated in these exercises as an assignment, which counted towards the term mark for the pupil. Generally, the feedback from the teachers and pupils has been positive. The pupils enjoy getting to see real world scenarios and enjoy the competitions in map making where the winners get prizes for the best maps. As part of the feedback provided, the teachers have expressed that by us coming to teach the pupils about geoinformatics, the pupils are able to understand geoinformatics in a better context than the teacher could provide from textbook-based learning.
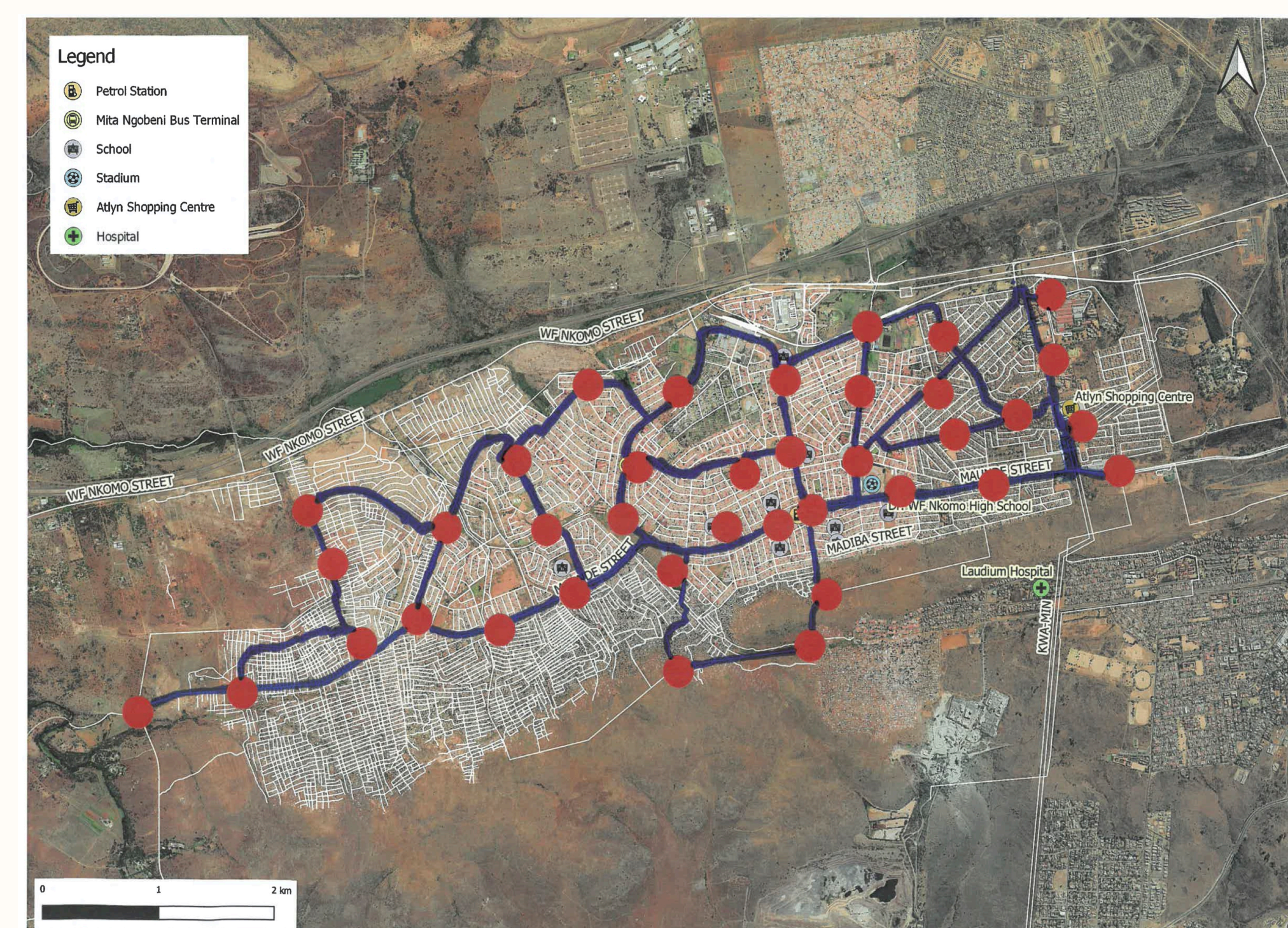
Schools and activities by the UP YouthMappers chapter:
- St. John's College, Johannesburg. Two mapathons were hosted during which rural parts of Tanzania were mapped in the End Female Genital Mutilation campaign and our neighbouring country Mozambique, in support of relief efforts of Cyclone Idai.
- St. Dunstan's College, Benoni. A desktop GIS exercise was completed of the local area with the Grade 11 and Grade 12 pupils and a paper based exercise was completed with Grade 8 and Grade 9 pupils in order to encourage them to take Geography as a subject until Grade 12.
- Dr WF Nkomo High School, Atteridgeville where the Grade 12 pupils were asked to map mini-bus taxi routes in and around Atteridgeville. This event was part of the global initiative Open Data Day 2020.
- Pretoria High School for Girls, Pretoria where the Grade 8 and Grade 9 pupils participated in a paper-based GIS exercise based off of Dr. John Snow's Cholera outbreak scenario.

Acknowledgements