T-rep – a web repository of tactile cartographic knowledge

Jakub Wabiński [a,*], Albina Mościcka [a], Andrzej Araszkiewicz [a], Damian Kiliszek [a]

[a] Military University of Technology, Warsaw, Poland; jakub.wabinski@wat.edu.pl, albina.moscicka@wat.edu.pl, andrzej.araszkiewicz@wat.edu.pl, damian.kiliszek@wat.edu.pl

* Corresponding author

Keywords: tactile maps, standardization, knowledge base, people with vision impairments, inclusive cartography

Abstract:

Tactile maps are maps read by touch (and to a limited extent by sight). Their content must be highly generalized, making their creation one of the most complex tasks in cartography. The lack of clear, universal guidelines for tactile map creation means the process is lengthy and subjective. Moreover, their production is usually complex and expensive (Ducasse et al., 2015; Wabiński et al., 2022). All this results in a shortage of tactile maps, especially educational materials, for the people with vision impairments (Barvir et al., 2021; van Altena et al., 2023).

In 2024, we started a three-year project with the main goal of providing the international research community and practitioners with access to knowledge and methods for the efficient creation of tactile maps using modern reproduction technologies. Our aim is to equip practitioners around the world with the tools for quick, repeatable, and affordable production of high-quality maps for people with visual impairments. We also want to support the development of services for the international integration of tactile graphics community, with one of the aims being the standardization of symbols applied on tactile maps.

These goals will be realized by organizing a series of multi-day international workshops in different parts of the world, to which representatives of tactile mapping environments will be invited to participate. Workshops are scheduled for 2026 and are meant to accompany thematic events and conferences. They will cover both the theoretical foundations of methodological map development and practical aspects related to different stages of their production and evaluation.

In addition, throughout the project, we will develop a public online repository (T-rep) that will consist of verified symbols and well-established map editing rules catalogues for use on tactile maps, along with digital repository of subject literature and a blog with regularly published news and case studies (Figure 1). Anyone interested will be able to browse, download, and contribute their own solutions to this repository.
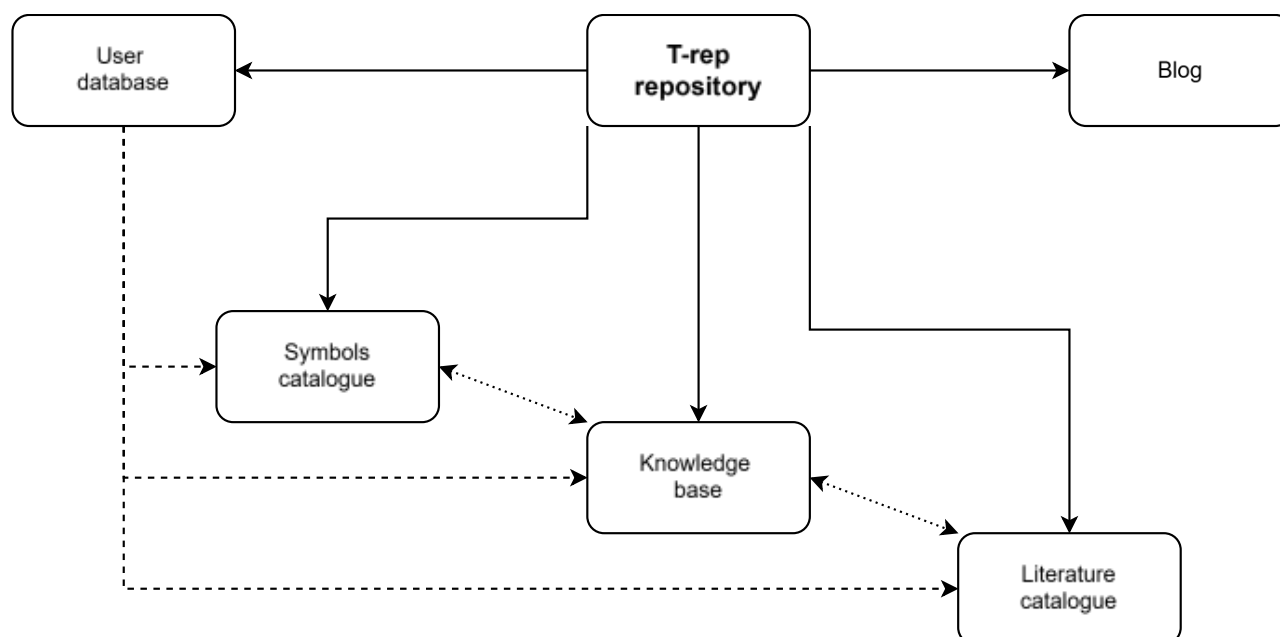
Figure 1 Planned structure of the T-rep repository

We are currently working on the concept of the repository structure, and soon we will start preparing workshop scenarios. During the presentation, I will present the results of our work so far and discuss some of the issues related to tactile map development, of which, as it turns out, many have already been solved and there is no need to reinvent the wheel.

Acknowledgements

References

Barvir, R., Vondrakova, A., and Brus, J., 2021. Efficient interactive tactile maps: A semi-automated workflow using the TouchIt3D technology and OpenStreetMap data. *ISPRS International Journal of Geo-Information*, Vol. 10(8), p. 505. https://doi.org/10.3390/ijgi10080505

Ducasse, J., Macé, M., and Jouffrais, C., 2015. From open geographical data to tangible maps: Improving the accessibility of maps for visually impaired people. *International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences – ISPRS Archives*, Vol. 40(3W3), pp. 517–523. https://doi.org/10.5194/isprsarchives-XL-3-W3-517-2015

van Altena, V., Rijnberk, D., Kuijer, M., Jansen, J., Min, E., van Welbergen, A., Visser, T., van der Vaart, N., and Nauta, J., 2023. Tailoring tactile maps based on blind users' needs. *Proceedings of the ICA*, Vol. 5, pp. 1–7. https://doi.org/10.5194/ICA-PROC-5-22-2023

Wabiński, J., Mościcka, A., and Touya, G., 2022. Guidelines for standardizing the design of tactile maps: A review of research and best practice. *The Cartographic Journal*, Vol. 59(3), pp. 239–258. https://doi.org/10.1080/00087041.2022.2097760