

TACTILE GRAPHICS FOR VISUALLY IMPAIRED PERSONS: EFFICIENT SOLUTIONS WITH 3D PRINTING TECHNOLOGY

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In the past, the production of tactile graphics (tactile maps, tactile images and diagrams) for the visually impaired presented a great challenge. Today, the technology of 3D printing makes the translation of visual information into tactile information fast and simple. The process calls for a thorough understanding of the tactile and haptic perception of visually impaired persons. Tactile maps serve two main functions: teaching geography and ensuring effective orientation and mobility of visually impaired persons. A new tactile map production process supports indoor and outdoor navigation of visually impaired persons, while tactile images and diagrams enable learning and provide them with an understanding of a variety of subjects and spatial relations. The Geodetic Institute of Slovenia has conducted a series of tests and developed an automated procedure for the production of tactile graphics with the latest 3D printing technology for the visually impaired. The article focuses on the accumulation and analysis of data, the translation of visual information into tactile graphics, and the 3D printing process. Several production cases from Slovenia will be presented: the tactile map for orientation and mobility of the capital of Slovenia–Ljubljana, the tactile model of the Ormož Basins Nature Reserve, the tactile map of the Centre for Urban Culture Ljubljana, the tactile map of the Slovene Ethnographic Museum, the tactile model of the Sečovlje Salina Nature Park (the traditional production of salt), the tactile plate of the famous Schutze ceramic plate from 1886, the tactile map of the Union of the Blind and Partially Sighted of Slovenia Library, and the tactile map of the Northern Sky.

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