

AN APPLICATION FOR VECTOR-BASED DYNAMIC NOISE MAPS GENERATION

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1. INTRODUCTION

The concept and the implemented application for vector-based, dynamic noise maps generation is presented. The application is an integral part of the system to dynamic urban noise monitoring, being developed at the Multimedia Systems Department, Gdansk University of Technology, Poland. The application is optimized to generate and visualize dynamic noise maps in the Internet, based on data outputted by the system.

2. DYNAMIC NOISE MAPS

In accordance with the European Directive 2002/49/EC, major European cities are obliged to produce strategic noise maps. Presenting static content, these maps contribute little to the public noise pollution awareness. Furthermore, their regular updates require time-consuming and expensive measurement procedures. The solution to this problem is a system to generate and visualize current noise distribution of urban areas, based on architectural, environmental and meteorological data. The output of this system is referred to as a dynamic noise map.

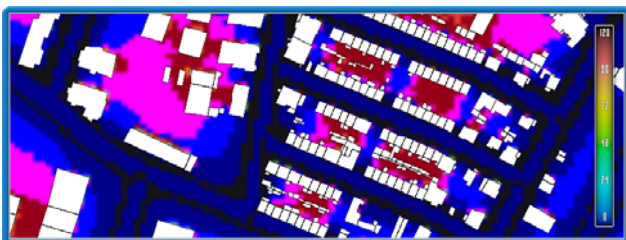


Figure 1. *Sample dynamic noise map.*

3. DYNAMIC NOISE MAPS GENERATION UTILIZING VECTOR GRAPHICS

The application utilizes state-of-the-art internal CAD engine to generate dynamic noise maps directly on user terminal. It is innovative approach, compared to the standard GIS software, mostly

employing specialized server-side technologies. The dynamic noise maps are generated as a vector graphic. The advantages of utilizing this technique are discussed. The main focus is put on presenting author's concept of the algorithm for noise contour extraction and shape labeling.

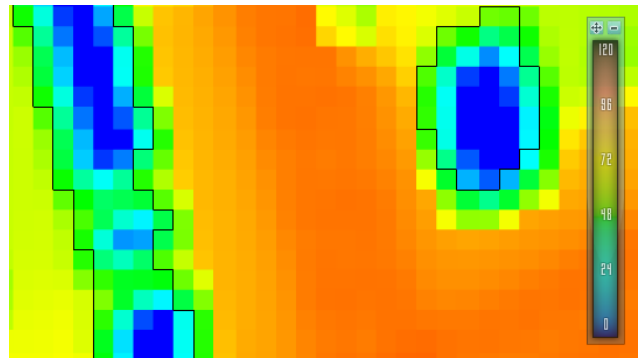


Figure 2. *Sample output of a contouring algorithm.*

4. IMPLEMENTATION DETAILS AND EXPERIMENTS

The implementation details of the application are presented. The focus is put on presenting application working architecture and description of key components. Being implemented in widely spread SWF format, the application is guaranteed to run properly on almost every desktop and deliver state-of-the-art rendering quality and performance. The quality and fidelity of extracted noise contours are evaluated.

5. CONCLUSIONS

The presented solution is a, much sought after, tool dedicated to generate and present dynamic noise maps in the Internet. The utilization of authors' concept approach to map generation process bypasses the requirements for server-side hardware resources and network bandwidth. The popularity of SWF standard in the Internet allows virtually every computerized user to access and use the system.