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Detektors

**Rhythms of Electromagnetic Emissions,
their Psychogeophysics and Micrological
Auscultation**

Almost any electronic gadget can be transformed into an audible and sometimes rhythmical sound object. "Detektors" presents such a transforming device, making manifest both a cartography of user-generated geolocational sound recordings, logs and walks, which reveal hidden electromagnetic geographies of our urban areas, and a database or catalogue of sonic studies of electromagnetic emissions produced by our everyday electronic devices.

At the beginning of the 21st century we are surrounded by ubiquitous electromagnetic oscillations, which are more and more results of computational protocolled processes, which turns them to algorhythms. "Detektors" suggests a new form or methodology of the *dérive*, possibilities afforded by a novel geophysical terrain. Psychogeophysics meets algorhythmics, as use of the detectors in city space allows for novel city play algorhythms.

"Detektors" is an open, collaborative project and uses sonic strategies to make audible the hidden infoscapes of our time. Unlike similar projects, with "Detektors" you can also hear the high frequency band. This means that you are able to hear modulations of WiFi, Bluetooth, GSM, UMTS, GPS and other transmission systems which are in the 100MHz-5GHz region of the spectrum. With a special built-in mini-coil you can listen to your computer, iPod, iPhone and other electronic devices. It is planned to build up progressively an online database of electromagnetic field recordings, where collaborators can upload individual recordings of their environments. The database will be linked to a map of the world (google maps), where you can browse through the diverse recordings similar to wandering through map-based

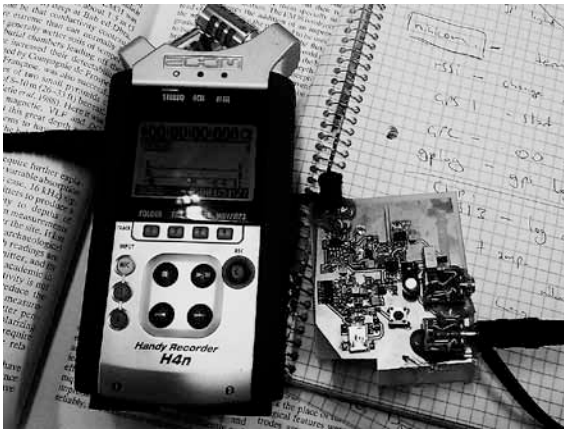


Fig. 1: Prototype Detektor Photo: Martin Howse

social networking sites. User-generated sound log-files shall reveal a hidden electromagnetic geography of our urban, but also rural areas. Additionally it is planned to generate not only a location based, but both a category and object based browsing and archive method.

The notion of algorithm (Miyazaki 2009) is a result of the transversal thinking of algorithm with rhythmic, therefore to think the symbolico-calculational with the sonic, thus the physical. The notion of rhythms gets viral in this kind of thinking. As rhythm is defined by Plato as the order of movement it is easy to understand changes of voltage in semiconductor circuits and movements of molecules in the air as rhythmic fluctuations. As soon as there is a combination of abstract sequence-controlling scheduling and the idea of automation with real world signals or actions, thus, as soon as it is possible to integrate the real with the symbolic, in a way that humans don't notice differences between them anymore, we can speak of a time critical discrete control of electric signals, thus of algorithms. They occur when real matter is controlled by symbolic and logic structures like instructions written as code. "Algorithms" let us hear that our digital culture is not immaterial, but consists of lively, rhythmical, performative, tactile and physical behaving machinic assemblages.

With psychogeography readily defined as a playful examination of the total effects of geography and place on the individual, psychogeophysics extends such research to embrace the geophysical, namely earth science measurements and study.

Psychogeophysics thus as a novel discipline can be defined as crossing the particle/wave and code distinction, offering a speculative take on future code; an uncovering of potentials in code as a new phase of software studies. The extension of psychogeographics into geophysics implies a collision between fiction (as software) and materiality, with geophysics defined as the quantitative observation of the earth's physical properties, with an emphasis on the magnetic field. Geophysics equally encompasses archaeological

geophysics, with measurement of such properties allowing for the mapping of previous traces; an extension into questions of detection and forensics.

Expanding a clear concern with electromagnetic [EM] phenomena as a question of substance, and extending the spectrum of artistic concerns to embrace modern data space, the research attempts to bridge an impossible divide between the physical and the protocol (code); asking how, within complex spectral ecologies, it is possible to examine and embrace both the carrier and the signal, to observe subtle interactions and inherent abstractions. In this context, such an examination becomes a manner of revealing; revealing another city, revealing new modes of communication and transmission (hidden networks).

Technical Details

The detector hardware is designed to record emissions under a wide range of (signal) conditions. An operational amplifier circuit amplifies induced current within a small coil of wire to detect highly localised, nearfield low frequency emissions. An Analog Devices AD8313 Logarithmic Detector chip demodulates and amplifies wide band higher frequency signals which extend widely through space. These twin signals are sampled (by a microcontroller) and recorded on micro-SD card with a direct USB connection (mass storage) implemented for easy uploading to the computer, and thus Internet. The device uses a small rechargeable battery, and a headphone amplifier is also included to monitor either of the two signals. The design is under active development at the prototype stage.

Further Directions

“Detektors” is an ongoing project. We are looking for collaborators and supporters all over the world.

References

- Miyazaki, Shintaro (2009), ‘Das Algorithymische. Microsounds als zei(t)kritische Schwellenphänome zwischen Sounds und Rhythmen’, In: Axel Volmar (eds.), *Zeitkritische Medien*, Berlin: Kadmos, 383-396.