McLuhan described the possibilities of man to expand the world by means of media: Parts of the human body may be amputated and replaced with extensions like wheels, cameras or permanent clothing. The most radical extensions so far are games which manage to work practically self-sufficiently: (Game-)Worlds which may remind us of Dr. Daniel Schreber’s „Aufzeichnungen eines Nervenkranken“ (Recordings of a nerve patient). But what is it we neglect to see or displace in those media systems? How can we render those magic borders visible which surround each game and medium, how can we capture their rules and make them playable? And what could happen if we start including personal information or data which we gather from the used medium into games? The netart group AND-OR develops GameArt along this thin line between reality, virtuality and overlayed digital reality. In “PictureTetris” a Tetris leaves its context and searches its artwork on the computer; the better you play, the deeper down your directory tree the game grabs pictures. In “Gamescape” the act of playing (i.e. the player’s movements) is transformed into 3D-cities and add a new level of perception. And in „sniff_jazzbox“ and „wardive“ AND-OR transposes the surrounding wireless-environment into music or enemy territory. These works realize inverse game and media design and push the digital subconscious up to the surface of reality. “AndOrDada” finally shows the start of a new type of evolving reality: you may create new stories out of your own enviroment.

Sniff_jazzbox¹ for Nintendo DS derives from Searchsongs. Here you can listen to the sound of your city. It is like listening to radio but more personal, locations get a new aura when hotspots like "Cindy", "Super Bat" and "WireLAN" play the music. And if there is no hotspot in the vicinity you are still able to listen to the passed hotspots. Sniff_jazzbox renders audible the technical infrastructure of communication. A new version for the Iphone emphasizes this even more. The sounds now come as a rhythm of beats and the personalizing has gotten a level more with inclusion of data from the addressbook of the Iphone the application runs on.

AND-OR has changed the game design focus of controlling the endo-environment in the game Wardive. The artists decided to invert the normal process of creating levels and games and used what they learned from Sniff_jazzbox: the game can be built out of the environment. This of course changes the whole gameplay. But here the surrounding area is not just a façade, it is part of the game. You have to fight the electrosmog in your area. The invisible technical surrounding area with its WLAN-hotspots is converted into a game. The heart of the game is a crystal, which grows when opponents streaming in from all sides collide with it. The player has the task to keep up his shield against the enemies. If he manages to touch an enemy before he gets to the center of the crystal the enemy gets destroyed. The streaming adversaries are the hotspots of the immediate area, which have been recoded in shape and ferocity. The look of the enemy is determined by the sequence of the letters of the names and the danger is determined by the size and strength of the hotspot. The game wardive is a locative and adaptive toy that reacts on its surroundings and changes accordingly. It creates levels through the player’s walk or ride through town. The game works on Nintendo DS and there is a new enhanced version for the iPhone; the player can easily use his portable device while strolling through town or using public transportation. The invisible infrastructure of a location is made visible and made usable for gaming. The perception of a player changes with his or her location. In our game like in wardriving the different open and locked wireless networks become visible.

The player may discover that in a certain way the social structure of a part of town may be mirrored in the names of the hotspots; he may also discover how fast a quarter changes. Business areas are wardive levels with similar and (sometimes even sequentially) numbered hotspots. Living areas are full of individual characters with lots of different ways of naming. There you find many surprises. If you sit on a bus you may experience the changing hotspots very intensely. Aware of this we introduced different level-types: stationary, strolling, ride a bus. The player chooses his own levels, and the world itself becomes a level-editor for the media-system Wardive. If you walk along a shopping mile with Wardive you will experience a
lot of barriers since you have to dodge other shoppers and traffic and at the same time try not to lose the touch on your game. The combination of reality and locative virtuality makes Wardive’s levels unique. Learning to master the game becomes more and more an overall strategy of playing. The surrounding world inadvertently becomes part of the game and part of the player. This way the game manages to show how a human being works with his temporary extensions: He uses them temporarily and puts them away when he is finished. While in use the tools change a human being. Wardive changes the perception of the world while playing, it may even change the behaviour of the player, since he starts developing different goals, he starts moving differently and looks at the immediate area as an enemy territory. In this respect the game is the most radical medium since it manages to alter perception and valuation of the world.

![Figure 4: Wireless Hotspots in town as AND-OR’s mobile games see and capture them](image)

andorDada is a road poem. You stroll through town and your immediate area generates a poem. You walk further through town or ride on a bus and the poem changes according to your location in town. andorDada is an endless poem; andorDada is adaptive locative Dada. The andorDada software works as an adaptive poetry-tool with locative levels. It captures wlan waves in the immediate area of the user and converts the wlan-waves into poetic objects. The wlan conversion uses a streamsearch algorithm which was also used in streamfishing, searchsongs and sniff_jazzbox. However the software not only manages to generate subjects and objects, as a crucial addition for the poetic value of the project it manages to create verbs from the captured hotspots.

![Figure 5: You stroll through town and your immediate area generates a poem: andorDada for iPhone from AND-OR (2009)](image)