

## **Position paper submitted to the Mobile AR Summit at MWC2010**

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# **Augmented Citizen – Challenges and Solutions for an Open and Sustainable Outernet**

## **The Concept of Augmented Reality**

The very concept of "Augmented Reality" implies a promise and a warning: AR delivers augmentation of our senses, but as a side effect might change our perception of reality itself. This happens by its nature to overlay some synthetically generated perception in the natural stream of perception. AR is a new type of media – it comes with no frames but is penetrating the perception process itself. This property opens up an immense potential to enhance our sensing of the environment.

## **The Potential of Mobile Augmented Reality**

Following the diffusion of performant smart phones AR migrates from industrial niches to mass technology. With huge interest and fascination of mobile AR applications for users, media, marketing and business it is time to assess AR technology and its visions. There are application contexts for business and marketing, media and entertainment, education and research. AR could even be the means to substantially change our consumer behavior in favor of more sustainable consumption.

## **Trends and Challenges of Mobile Augmented Reality**

The economical potential and the societal impact of this technology alike have to be considered. E.g. Social networks and the internet of things in combination with AR will create radical new situational settings for the user, with a new kind of information load, complexity and risk potential. We will analyse the trends and contexts of AR and the demand to critically reflect the challenges for users and society. The coming of ubiquitous AR is a part of a broad trend to ubiquitous information access. Mobile AR will grow acute the issues of privacy, censorship and copyright. In future scenarios of a never-ending stream of overlaid add-on information, infiltrating our living environment, the questions of authenticity, security, knowledge control and power arise.

## **Approaches and Solutions**

Technological and technocultural solutions are displayed to tackle with the challenges. On the technical side we find promising efforts to establish open standards enabling a seamless and borderless "Augmented World", delivering layers for all kind of contexts and demands, even purely private layers. But what happens, when data penetrate our living worlds, when the complete space-time continuum around us can be used for an overlay of data? This new freedom creates a lot of complexity and irritation how to use this transparency in a responsible manner. With advancements in object recognition everyone will be able to attach signs, annotations, finally meaning and interpretation to anything in his surroundings.

It looks quite harmless, when places, buildings, space points are classified, annotated, reviewed. But in the next development step the mobile face recognition will pin down the social and legal identity of a person. This happens technologically effortless, but with vast consequences for the social: How we conceive each other in such a setting of "social nakedness"?

## **Augmented Citizen as a vision**

Under the assumption that strong identification technologies, based on face recognition, will be a part of AR in the near future there is an inevitable conclusion: The impact of mobile AR for our culture and our civil rights might be quite explosive. In a consequence the technological and economical drivers of the AR evolution have to be balanced with some kind of democratic control, since powerful technologies like AR interfere so intimately with our modes of perception, evaluation and cultural values.

We propose the vision of an "Augmented Citizen". The concept implies two sides: First, to be *augmented*, enhanced with tools to counter-balance the growing transparency and analytical tools of the political and economical powers. Second, the "Augmented Citizen " as a citizen. The *citizen* as a political category means awareness of the whole and responsible action. As a matter of fact the AR technology holds the potential to augment *rationality*, since AR can deliver context, backstory and consequences of our doings into the situation. With this feature AR could increase understanding of our actual situation and support the wisdom of our decisions – perceiving and deciding with more depth of focus.