

# SEE MORE IN VIRTUAL REALITY

## HELPING PEOPLE TO SEE OBJECTS OUTSIDE THEIR FIELD OF VIEW

The field of view in head mounted displays only allow a person to see what is in front of him. Content and objects not placed in the front could go unnoticed, making the user miss out on the experience or missing important information. Six tools that should help users be more aware of what is around them were developed and tested.

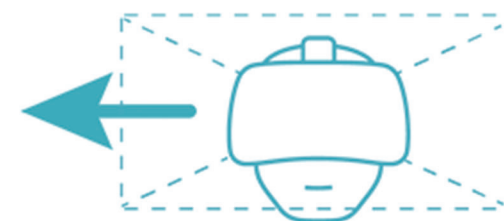
### GUIDE ATTENTION

The tools below are designed to sub-consciously guide the attention of the user in a certain direction so that they turn their head and become aware of a specific object or content. Participants favored these guiding tools for finding specific objects.



**Animated Object**  
Movement automatically grabs our attention. Objects that fit the environment can be animated to go to a certain spot.

In the tests it is one of the more effective and appreciated tool as it is less obtrusive and fits inside the virtual world.



**Peripheral Arrow**  
An arrow placed in the periphery will be processed by the brain and guide the users attention in the aimed direction.

The arrow is perceived as professional, but participants felt forced. It is also less precise as it only indicates direction.



**Converging Lines**  
These are placed in the background and are found to be very subtle and participants did not always notice them.

Adding an animation to the lines should help catch the users attention.



### INCREASE FIELD OF VIEW

The tools below are designed to make the user more aware of his or her surroundings. This allows several objects, outside the users' sight, to catch attention. The tools help users to orient in the world and become aware of multiple objects. The tools do require the users to interpret them.

**Radar**  
A little avatar indicates in which direction a user is looking. The dots indicate important objects around the user.

Participants rated it as the most pragmatic tool and appreciated the filtering of important objects.



**Mirror Ball**  
With its reflective, round surface, the mirror ball shows everything that is around the user.

It allows an instant overview, however participants struggled with interpreting and applying what they see in the distorted reflection.



**Miniature World**  
The virtual world is shrunken to a miniature world, allowing the user to get an overview of the world and its objects.

Participants felt more in power, but the miniature world needs to be filtered, as participants felt overwhelmed with the details.



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aiding immersants to see objects  
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