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# Game Ideas

Inspired in a conversation with Prof. Augenstein, we tried to divide the different game ideas in categories for a better explanation. Each game idea is evaluated with the following scala:

|  |  |  |
| --- | --- | --- |
| **What** | **Description** | **Values** |
| **Impact:** | On the Virtual Buzz app if it should be extended | low – medium – high |
| **Area:** | For what exactly a feature should be developed | User Immersion - Simulation Quality - Fun |
| **Pros:** |  |  |
| **Contras:** |  |  |
| **Effort:** | Resources cost estimation | low – medium – high – very high |
| **Technological risk/security:** | Estimation of the likelyhood of unknown problems, performance penalties, etc. | low – medium – high – very high |

### Virtual Buzz extensions with Virtual Objects

This game ideas are based on the extension of the Virtual Buzz application using different virtual objects from Unity and the object recognition feature from Vuforia. All are "in app" games and can played in single or multiplayer mode.

#### 1. Traficc Sign recognition

The application shows randomly the user traficc signs as virtual objects. A countdown timer runs. In single mode, when the user recognizes the sign it presses a button in the controller and becomes points. Different signs have different points quantity, and special signs like the Stop sign give extra points. If the countdown is out and the player did not recognize the traffic sign, game over.

The application increases the difficulty and the velocity based on the points quantity and the alcohol levels, and reduces the time. More points, more difficult.

In multiplayer mode, the first player who presses the button wins. The game is divided into rounds, each one containing 3 recognition sessions. Only the players with at least one positive recognition pass to the next round. At the end, the player with more recognitions and points, wins.

|  |  |
| --- | --- |
| **Impact:** | medium |
| **Area:** | fun |
| **Pros:** | relative easy implementation in single mode |
| **Contras:** | Loss of the real application’s goal, avoiding alcohol consumption in youth people |
| **Effort:** | medium / high (multiplayer) |
| **Technological risk/security:** | High, because of the introduction of the controller |

#### 2. Avoid Objects

The user wear the glasses with the Virtual Buzz application. The application, based on the current alcohol level, creates and throws different virtual objects from different directions with different forms and colors to the user. The user must avoid this objects and receives points for it. If hit, points will be subtracted. After a time period and points quantity, the objetc's velocity and quantity increases. The game has no rounds. It increases ist difficulty as long as the player is able to avoid the objects. Only in single mode.

|  |  |
| --- | --- |
| **Impact:** | medium |
| **Area:** | fun |
| **Pros:** | relative easy implementation |
| **Contras:** | Loss of the real application’s goal, avoiding alcohol consumption in youth people |
| **Effort:** | medium |
| **Technological risk/security:** | low |

#### 3. Search for Objects

The application shows shortly an object to the user. The user has to look for the object. If he finds it, he receives points and a new object will be shown. A timer counts down, and the user looses if he doesn't find the object in the given time.

The difficulty increases based on the points and alcohol level. The alcohol level increases automatically when the user looks at certain objects and the application recognises them (using the object recognition feature from Vuforia). Each time the time is shorter.

|  |  |
| --- | --- |
| **Impact:** | medium |
| **Area:** | fun |
| **Pros:** | relative easy implementation |
| **Contras:** | Loss of the real application’s goal, avoiding alcohol consumption in youth people |
| **Effort:** | medium |
| **Technological risk/security:** | low |

### Virtual Reality Games

This game ideas combine a complete virtual reality world with the image effects simulating the alcohol.

#### 1. Virtual Reality Car Simulator

The application shows a virtual world from the point of view of a car driver under the effects of alcohol. The user can drive by steering a virtual wheel with both hands and shift up through gears with the controllers joystick.

Same as in the ASN physical devices, the driver must drive under different weather situations and avoid different obstacles or challenges. The reaction times are mesured, and after the session the player can see its reaction times compared to a sober person. Each session increases in difficulty and alcohol levels.

|  |  |
| --- | --- |
| **Impact:** | High |
| **Area:** | fun |
| **Pros:** | No infrastructure needed (physical car simulators, big rooms),  several players can play simultaneously in single or multiplayer  mode. |
| **Contras:** | High production costs |
| **Effort:** | High - A car simulation in a virtual reality application could need many resources |
| **Technological risk/security:** | medium |

#### 2. Find the way home and arrive alive

Inspired in the last Report from ASN.

The player must go home under the alcohol effects in a virtual world in a given time. The game shows the way home with different virtual object as arrows, pointing fingers, etc.

The player must walk in the right direction, maintain its walking direction, avoid obstacles, go upstairs and downstairs, recognize different traffic signals (f.e. in order to cross the street), avoid running cars, even take the bus/train and get off at the right place.

From timte to time the player must complete several tasks before it gets a hint of the way home. With the bluetooth controler he might draw a figure, point exactly to a given point, open a door (with the controller acting as the key), etc.

The game is built in different difficulty levels. The alcohol levels and duration of the way increases with each level, or an extended version of the Virtual Buzz Randomization class changes randomly the player alcohol level (higher or lower) in order to provide a more realistic feeling of the alcohol influence.

|  |  |
| --- | --- |
| **Impact:** | High |
| **Area:** | User Immersion |
| **Pros:** | Total flexibility in the creation of the environment, challenges or  obstacles. Multiplayer possible. |
| **Contras:** | A big physical area without any obstacle is needed. Interaction with  no playing persons not possible. The mobile phones capacity of  generating convincing graphics is still not enough. High production  costs. |
| **Effort:** | Very High - The creation of a detailed and interactive environment would need great ressources, same as the introduction of the controller |
| **Technological risk/security:** | Very High. There are no examples of the use of a controller with such features |