# Target

TARget is a ball throwing exertion game made by me for the research group healthy lifestyle in a stimulating environment with the goal of helping children develop aiming and throwing skills. This project was made using Processing, which is a Java library.

## The brief

TARget was made during my first internship at the Research Group Healthy Lifestyle in a Stimulating Environment over a 16 week period of time including user testing and research.<br>

The goal of the project was to apply interactive technologies to physical education in order to make physical education classes more efficient, more motivating and more targeted.

## The project

Before development of TARget itself commenced research was performed on the current Dutch physical education curriculum and how this was currently being applied in physical education classes. From this a decision was made to focus on the aiming and throwing part of the curriculum. Users are to throw at a variable size target from a distance based on the age of the user and their skill level. <br>

In order to be able to digitally register the throws made by the user the Kinect was used, due to its handy infrared sensor and easy integration with various programming languages and IDEs. <br>

Based on these criteria TARget was created using Processing, an extension for Java, where the user can throw at a target in a variety of gamemodes in order to cater to the development of different skills. The program is divided into multiple classes to facilitate easier interaction between the main logic loop, the individual gamemodes and the Kinect sensor.

## The result

At the end of my internship 4 gamemodes were successfully implemented into TARget. Namely a standard mode where the player can throw against a static target without any feedback, a moving mode where the target changed position on the screen, a size changing mode where the target shrinks or enlarges based on if it is hit or not and a complementary feedback gamemode which shows the user the exact point where the ball hit the wall using a purple dot. <br>

As of this writing a 5th gamemode was including by way of a conditional shrinking or enlarging gamemode, where players had to hit a target multiple times for it to shrink, and miss multiple times for it to grow.

# Secret Motion

Secret Motion is a VR project developed for the Oculus Rift where the player can interact with the virtual environment using their own hands using a Leap Motion controller mounted on the front of the Oculus Rift. This project was realised using Unity.

## The brief

Secret Motion was created as part of a 2 week program were I had to create something related to use AR, VR or both in a group situation. We decided we wanted to have users be able to use their own hands whilst in a VR environment. For this we used Unity due to previous knowledge and experience.

## The project

Secret Motion initially started off as a very ambitious project were we wanted to have the player in a fully modelled interactive environment play as a mage and be able to access certain spells by making gestures with their hands. However it was quite quickly apparent that this was not possible in our allocated time. <br>

We pivoted over to creating a simpler interactive environment where the player can interact with various objects and have certain actions happen based on hand and finger position. In order to accomplish this we split up the various elements of the project into its constituent pieces and began animating and programming these. These individual pieces were each tested using one of the Leap Motion sensors we had, after which we also tested them with the Oculus Rift which was modified to have a Leap Motion sensor mounted in front of it. <br>

After having created these individual pieces I took it onto me to gather and combine all of these and make them play nice with each other. For this I created a new environment and imported the various scripts and objects one by one. After which I calibrated the distances and the objects to be of an useable size for the user.

## The result

To conclude these 2 weeks an exposition was organised where visitors could visit and interact with the project. The user was positioned at the centre of the floor as marked by a black piece of tape on the ground and had the Oculus Rift and Leap motion placed over the head. <br>

The user could interact with various buttons in the environment by physically reaching out for them and touching them. These buttons would create various objects for the user to interact with, the user could move them by pushing or could lift them by grasping. Then the user could throw the objects at a target placed in the distance. Pressing the buttons again would destroy the old object and create a new one. Furthermore the user could enable laser hands by pressing a button and pointing the palm of the hand at a target, after which the laser would be fired from the palm. Lastly the user could light us a fire on the thumb by raising it.

# Digital assistant Hendrik

Digital assistant Hendrik is a digital companion and guide users can access on their mobile phone to assist them during their visit at the Gemeentemuseum Den Haag. Hendrik gives handy tips and information whilst being minimally obtrusive using AR technology.

## The brief

The Gemeentemuseum Den Haag had a problem where they found that people would get lost in the museum and asked us how we could solve this. For this we had a 7 week research cycle and a 7 design and develop cycle. After preliminary research into the building we decided we would focus on finding out what the people wanted and found important about their visit.

## The project

The project started off with an initial visit to the museum for a look into how we experienced the current museum as it is. Based on this we gathered a list of what we deemed as inadequacies, such as bad signage and not knowing if you visited the entire museum. <br>

Based on this we started interviewing visitors and observing behaviour within the museum. This verified our earlier findings, but also added a requirement for more information about the art. We decided that we would focus on the holistic experience of the museum visit, and gathered more data on that such as visitor’s interaction with various touchpoints within the museum and common patterns exhibited by visitors. Another point we found out was that most people did not know the interesting story of the museum, which was created by Hendrik Berlage in order with the intend of making people feel lost in time whilst in the museum. <br>

From this research we started development on a guide for the visitor, but found that it was too intrusive. As such we performed research on digital assistants and how to make these non-obtrusive. We focused on improving the story of Berlage and the museum, increasing the amount of information available to the museum and making the visitor feel fulfilled at the end of the visit.

## The result

The final result, named Hendrik, after the creator of the building is a digital assistant visitors can download on their phone using the free Wi-Fi at the museum. Hendrik is originally introduced to the visitors via the tickets they order. These personalised tickets contain a personal message from the museum which guides them to the digital assistant. <br>

Once downloaded and visiting the museum the digital assistant will guide the visitor around using simple and clean digital maps. Then after the person is at a point of interest the phone will draw the attention of the user asked to be pointed to the point of interest. Visitors can subsequently read information of this point of interest. <br>

Lastly the digital assistant will guide the visitor to the Berlage room where more information about Berlage and his museum is presented using an interactive 3d model of the museum. <br>

As the visitors are done with the visit they can keep their personalised tickets as memorabilia and try collecting other pieces.

# TomTom Curfer

TomTom Curfer is a project in which I redesigned the currently existing TomTom Curfer, a car driving statistics app, in order to add to the experience of its user. For this a communal element was added into the Curfer to make people compete and compare their scores.

## The brief

TomTom Curfer came out of a request by TomTom to create a redesign for their newest product, the TomTom Curfer, since it didn’t gain much traction in its current state. We were to identify the core issues and create redesigns based on these issues. These redesigns did not have to be fully functioning, but had to show the solution as an interactive prototype. 10 weeks were established for this project including research and design.

## The project

The TomTom Curfer is an application on the user’s mobile phone which tracks the data outputted by the car and its internal sensors. Based on these data statistics, the driver is awarded a current score where lower scores means worse driving. <br>

The project itself started off with me getting a TomTom Curfer installed on my own car and take a test drive with it myself, to see how and if it worked. After this I recruited 2 drivers and had them drive for 30 minutes a set track around the area. This was followed up with an interview with the drivers to understand if they would use the TomTom Curfer in the future and if no, why not. <br>

From this I established that the drivers felt no need to use the TomTom Curfer, since it only existed in its own application. The drivers wanted reasons to use the application such as competition and rewards. <br>

I met with a car mechanic and asked what he knew about the TomTom Curfer and its related technologies. Sadly enough not much new insights were gained from this conversation. He did however, verify what the TomTom Curfer measured as its limits and came to similar conclusions as the drivers originally did. <br>

Based on this I started creating a redesign using Photoshop and Axure RP. Since I had access to the base screens I could quickly conjure up new screens and decided to add a communal aspect to the TomTom Curfer using a competitive system as its base.

## The result

The final redesign of the TomTom Curfer consists of a home screen where your driving score is determined on you average driving score divided by your total distance travelled. A group section where people can join and leave groups and a score overview page. <br>

The user can join a group via a code generated by the groups administrator(s), after joining the group members can see each other’s driving scores. Based on these scores a ranking system is implemented where the best driver is placed at the top of the leader board. Other drivers within the group can subsequently try to improve their driving in order to overtake the leader. A reward could be given to the groups top scorer each month. For example a company could reward the top driver with fuel paybacks. <br>

The way the score is handled is using the same metrics as previously used. But instead of it constantly showing a score, it instead awards points for good behaviours and actions whilst driving, and subtracts points when bad behaviours or actions are done. This results in a score per distance. Which the user can see and improve upon. Secondly the system also provides feedback as to why it added or subtracted points such as taking gentle corners or harsh braking.