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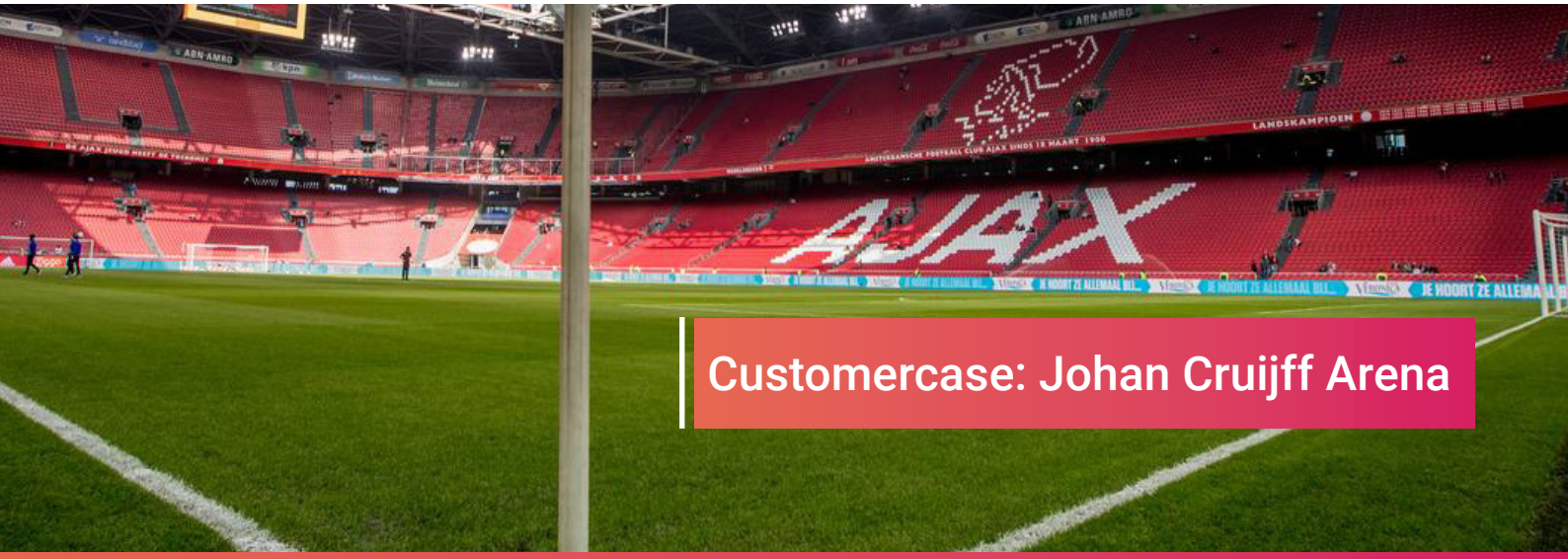

Customercase: Johan Cruijff Arena

CUSTOMERCASE: HOLOLENS APP, JOHAN CRUIJFF ARENA

TECHNIQUES USED

- Microsoft Hololens
- Unity3D
- Microsoft Azure Cloud
- Power BI

BENEFITS

- Full use of data from Power BI
- Interactive data
- Easy to use
- Hands free usage

Managing a big field and stadium can be a lot of work, with the use of IoT data and visualization the Johan Cruijff Arena wanted to maintain management by exception.

ABOUT JOHAN CRUIJFF ARENA

The Johan Cruijff Arena is the football stadium of the Netherlands, home base of AFC Ajax and the Dutch national team. Besides that it provides multi-functional accommodation for both large national and international music and dance events and smaller gatherings predominantly in the corporate business segment. These activities take place in close cooperation with several partners. Quality service, state-of-the-art facilities, safety and optimal public perception are the main strategic pillars. The Johan Cruijff Arena is one of the most sustainable stadiums in the world and is regarded internationally as a role model for modern stadium construction and exploitation. The Innovation Center acts as a living lab for innovative concepts for stadium management and event experiences.

WHY THIS HOLOLENS APP?

The Johan Cruijff Arena is an innovative stadium and they are using smart solutions all over the place. All the data is processed and stored in the Microsoft Azure Cloud, data is visualized using Power BI and the field data is collected using IoT sensors. Collecting data is of course only one part of the solution. Visualizing is equally important the make full use of the data. The Johan Cruijff Arena wants to make full use off all the data to assure an optimal pitch for AFC Ajax. Managing a big field and stadium can be a lot of work, with the use of IoT data and visualization the Johan Cruijff Arena wanted to maintain management by exception. The HoloLens applications helps them to have a clear understanding in which part of the field needs attention like more light, water or wind.

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TECHNICAL DEVELOPMENT

In a joint collaboration with the Johan Cruijff Innovation Arena, Recreate has developed an HoloLens application. The starting part of this journey was the BIM model provided by Geodan (another partner of the Johan Cruijff Arena). The first challenge was to optimize this huge model. After some research we discovered the model contained more than 45 million polygons. People familiar with the HoloLens know that any model over 80.000 polygons will not run smoothly on the HoloLens.

After optimizing the model the next task was to make the model HoloLens ready. Our 3D artists converted the BIM model of the Johan Cruijff Arena in to a visual appealing model which was suited to be used on the HoloLens. The HoloLens application visualizes the Johan Cruijff Arena and the pitch, which is the "star" of the app. Every square meter of pitch in the Johan Cruijff Arena is equipped with IoT sensors to measure key data like: humidity, hours of (sun) light and wind information. The HoloLens application shows a big raster on the pitch visualizing the IoT measured places.

HOW THE APPLICATION HELPS

The storyboard of the App consist of the IoT measurements of one square are outside of the threshold. This individual square is highlighted and the user can zoom into the details. By making use of KPI's the user sees the most important measurement values. Per topic the data is available and the problem can directly being solved by: applying light, make wind or give water. Using animations the user will see how a problem can be solved. When the work is done al squares on the pitch are "green" meaning the whole field is within the pre-defined boundaries. In the HoloLens application the Johan Cruijff Arena build up again ending the animation with Augmented view of the Arena.