v.1.1

5G Fieldlab Amsterdam Zuidoost

Crowd Control



5G

Event 3 November 2018

kpn

Summary

- The goal of this document is to give a short overview of the usecases that will be demonstrated on the 3rd of November 2018 in the Johan Cruijff ArenA.
- Only confirmed and agreed usecases are included in this document. Agreed means between KPN, Nokia, Gemeente Amsterdam and Johan Cruijff ArenA.
- The ambition for an additional media usecase is discussed and will be assessed, tested and implemented. At this stage it's not confirmed if implementation before 3rd of November is feasible. Implementing will not take the current focus of the 3 usecases.

1. Bodycam – Smart Steward Phone - overview

Where

Stewards with 5G capable smartphones will be scattered around the playing field.

Usecase

- Bodycam (Smart Steward Phone)

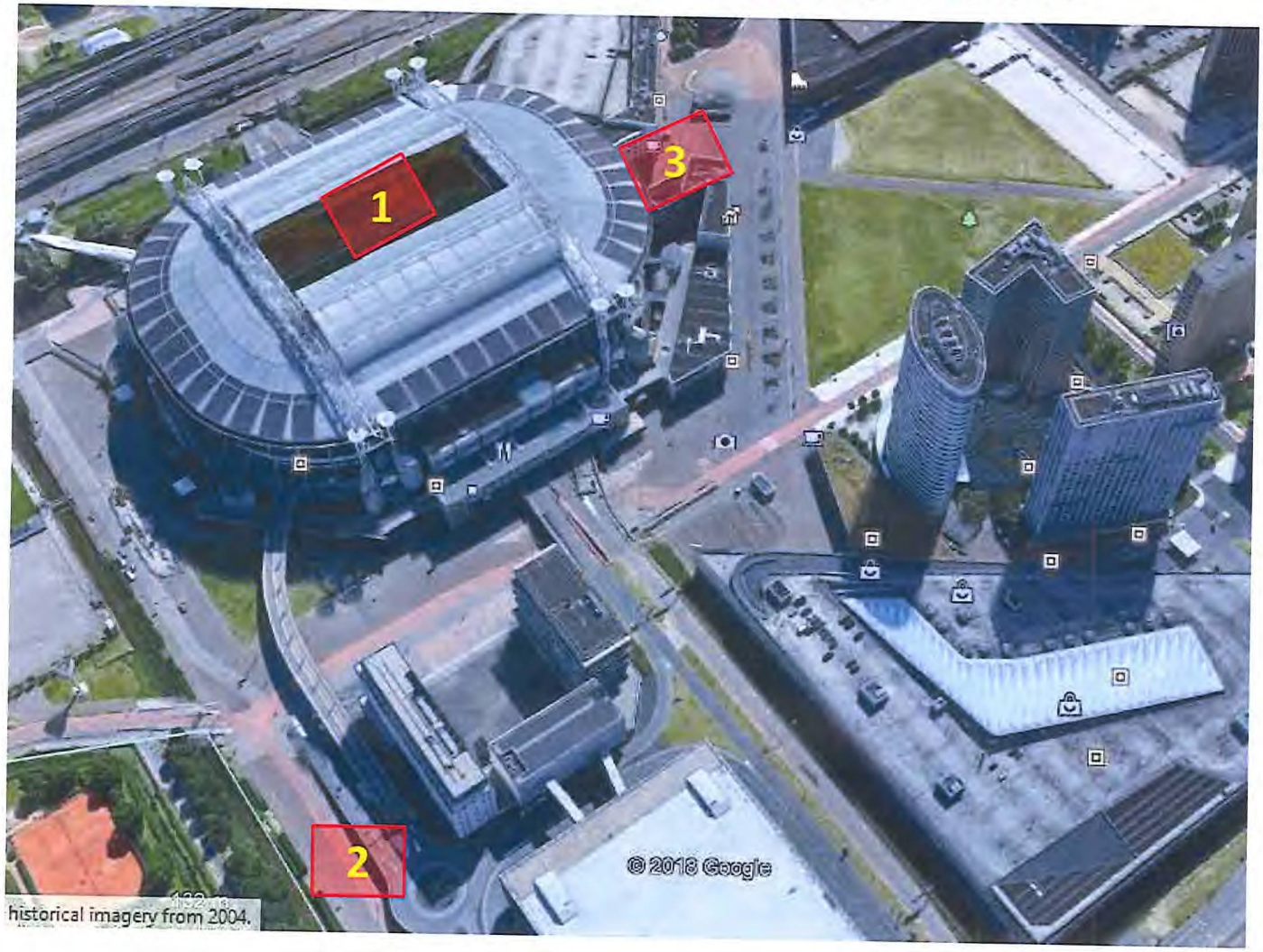
5G aspect of the usecases

- Flexibility (mobility, high capacity)
- High res content via 5G

Involved parties

- KPN, Arena, Geodan, Nokia, Gemeente

Usecases – 3rd of November demo



1. Bodycam usecase
2. License plate recognition (whitelisting)
3. Body count, que length, digital perimeter

1. Bodycam – Smart Steward Phone - detailed

- 6 stewards will be equipped with a 5G capable, Android smartphone (camera facing away from the steward)
- The stewards will be scattered in the circle around the playing field. 2 of the stewards will move from the Arena boulevard inside the stadium.

<u>Detailed scenario usecase demonstration</u>

1. 2 persons will be on the Arena boulevard (in 5G coverage area) and move into the Johan Cruijff ArenA, location is visible on the map. Demonstrating the capability to use the bodycams on the edge between inside and outside the stadium.
2. Stress situation will be simulated. 2 of the stewards will swap their location and do this running to the new location – an alarm will triggered.
3. Disturbance in specific area of the tribune will be simulated. On the map it's shown where the 6 stewards are located. One of the stewards will be directed to the disturbance. Camera is turned on to overlook the situation.

1. Bodycam – Smart Steward Phone – high level

What

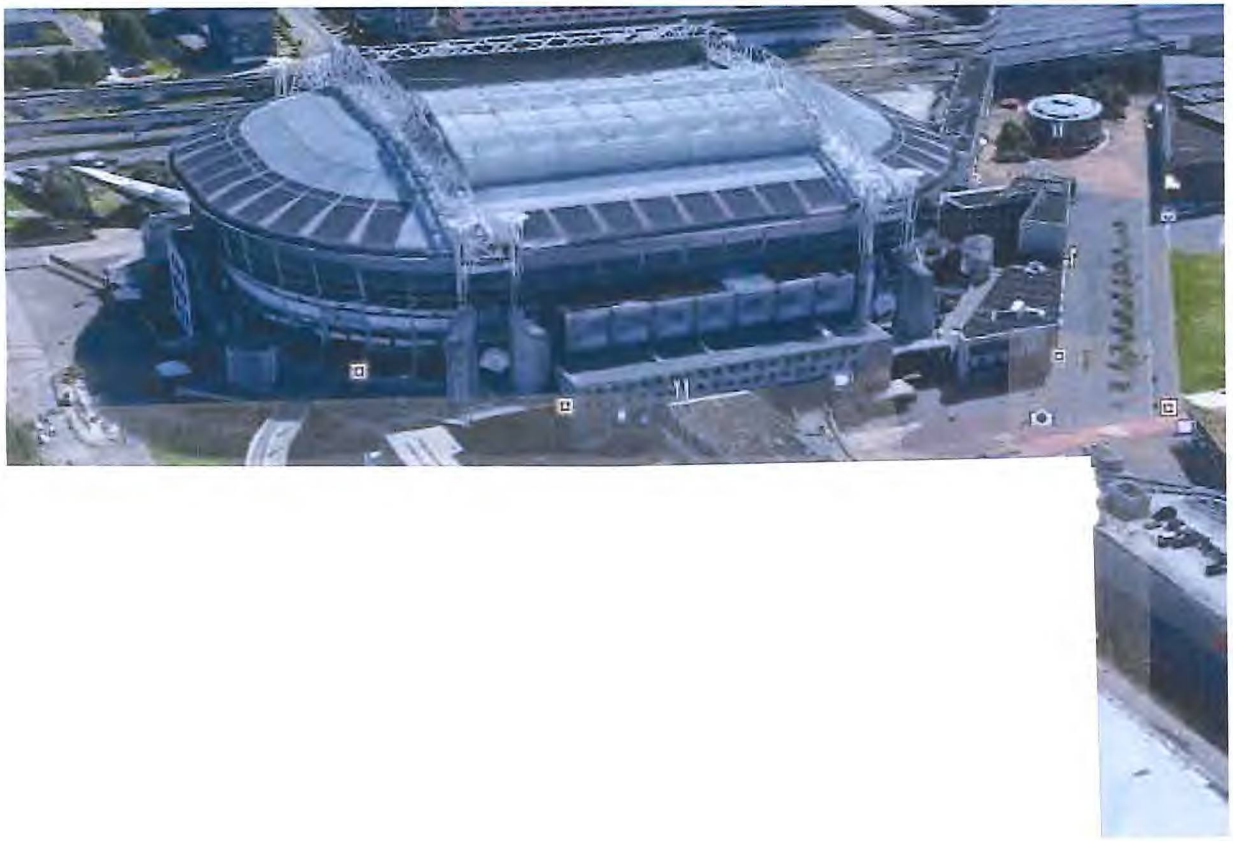
- Stream on demand
- Location on map (Phoenix – application used by)
- Field of view indication on map (Phoenix)
- Change in movement detection for alarm on incidents
- Indication of camera coverage in area of interest in combination with fixed CCTV camera's field-of-views.



Components

- 6 x Essential PH-1 mobile phone (supporting band
- 6 x simcard 5G network
- 5G slice for Smart Steward Phones
- Mobile Edge Computing
- API for Phoenix to collect streams & data from sensors

2. License plate recognition (whitelisted guests) - overview



Where

The camera will be placed near (next) to the current camera that is located behind the 'parking house' at the beginning of the fly-over towards the ArenA dek.

Usecase

- Whitelisting guests (license plate recognition)

5G aspect of the usecases

- Mobile Edge Computing

Involved parties

- KPN, ArenA, Nokia, VCS, Gemeente

2. License plate recognition (whitelisted guests) – overall



What

- License plate registration and realtime verification with VIP-list
- Grow scenario of the usecase is feedback to guest with reserved parking spot and navigation towards the parking spot.

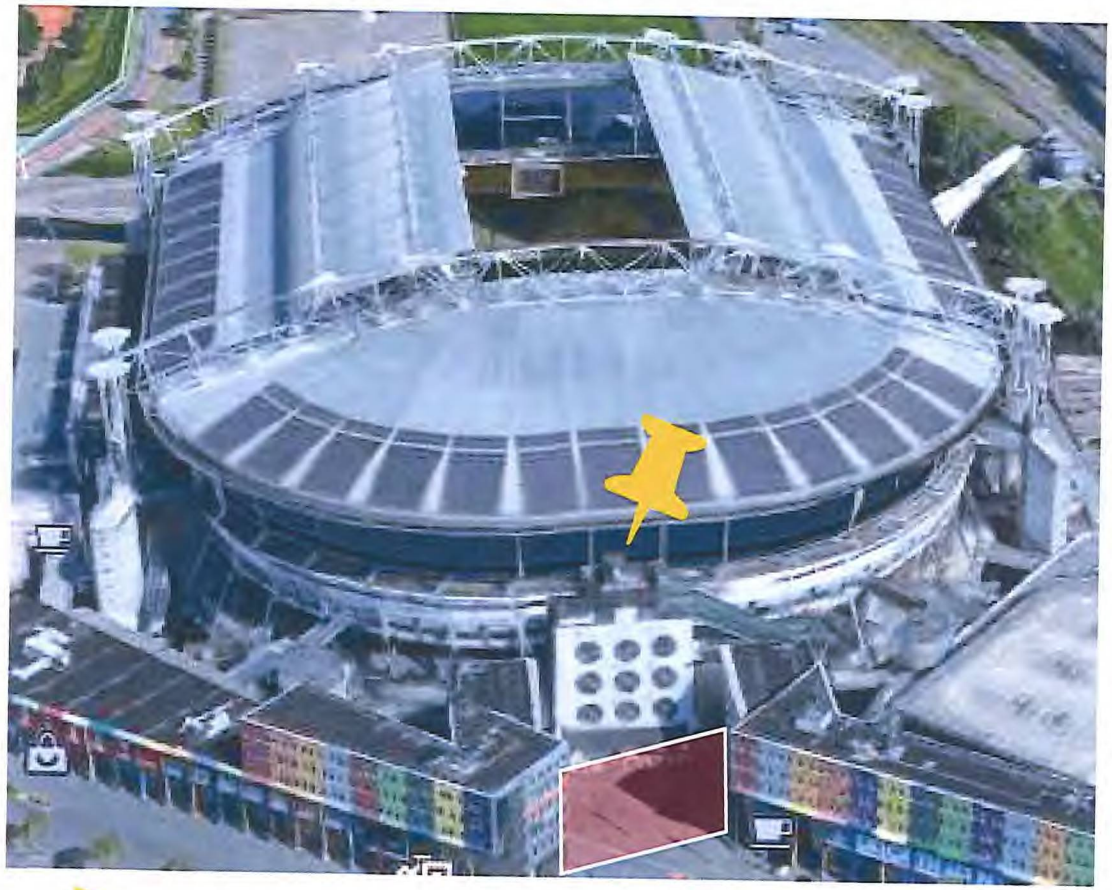
Components

- 1 x Bosch Dinion camera
- 1 x simcard 5G network
- 5G slice for stationary camera's
- Mobile Edge Computing

2. License plate recognition (whitelisted guests) - detailed

- 20 guests known parking at 'Arena-dek' are whitelisted and this list will be imported in the Mobile Edge Computer.
- Prior to the match the camera will be operational and alarms will be triggered when one of the whitelisted guests arrive via the fly-over.

3. Crowd management



Location camera

Where

The camera will be placed near (next) to the current camera. The target area is the area in front of entrance south

Usecases

- Body count / que length
- Digital perimeter

5G aspect of the usecases

- Realtime analyses and alarms
- Connection high spec camera via 5G

Involved parties

- KPN, Arena, VCS, Nokia, Gemeente

3. Crowd Management – overall



What

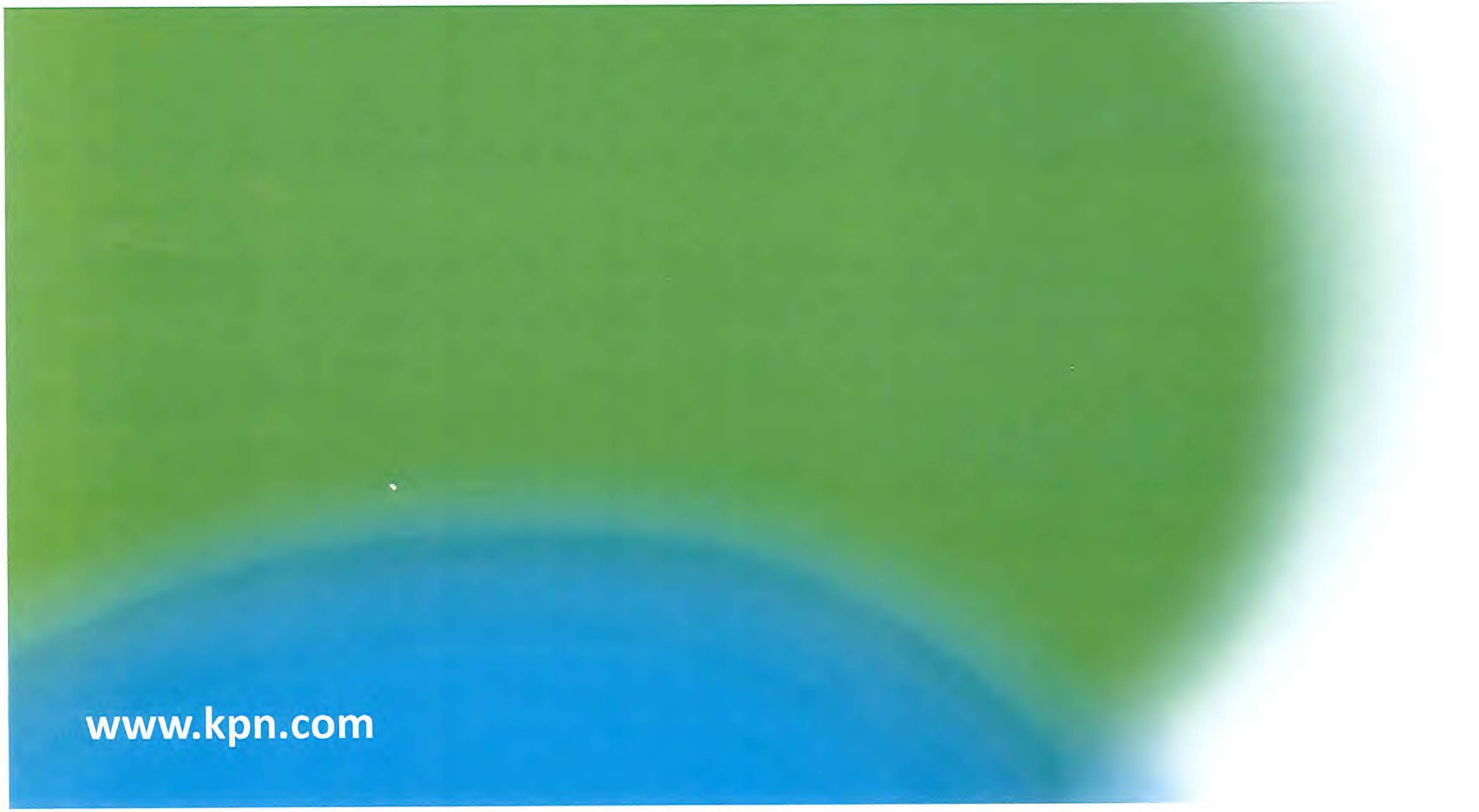
- Body count of people in front of entrance south
- Determining que length in front of entrance south
- Digital perimeter in front of entrance south

Components

- 1 x Bosch Starlight 5000i camera (onboard LPR feature, no external software analytic engine required)
- 1 x simcard 5G network
- 5G slice for stationary camera's
- Mobile Edge Computing

3. Crowd Management – detailed

- The number of visitors in front of entrance south will be continuously displayed on a screen. When the number of visitors in front of the entrance exceed 250 an alarm will be triggered.
- The length of the que/ques will be continuously displayed, when exceeding 10 meter an alarm will be triggered.
- When visitors enter the digital perimeter an alarm will be triggered. Exact location of the borders need to be determined.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