



The use of UAV's in recording crime and incident scenes



« waakzaam en dienstbaar »





Introduction

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National Police

National Unit

National Operational Cooperation

National Forensic Service Centre

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Introduction

A screenshot of a Firefox browser window displaying a Google search for 'drone'. The browser's address bar shows the search URL. The search results page features a large image of a drone with a camera mounted on it, held by a person in a high-visibility vest. To the right, there is a 'Safe Search' dropdown and a 'Delen' button. Below the main image, there are several smaller images related to drones, including one labeled 'Drone Politie'. The browser's taskbar at the bottom shows the Windows Start button and several application icons. The system tray in the bottom right corner displays the date and time as 9:57.



- ◆ **Expert Team Visualisation and Reconstruction**
- ◆ **History UAV's**
- ◆ **Pointclouds from Pictures**
- ◆ **Case Examples**
- ◆ **UAV's and the Public**
- ◆ **Questions ?**



- ◆ **Specialized in:**
 - ◆ Crime scene and Incident recording
 - ◆ Crime scene and Incident visualization
 - ◆ Crime scene and Incident reconstruction





Crime Scene recording



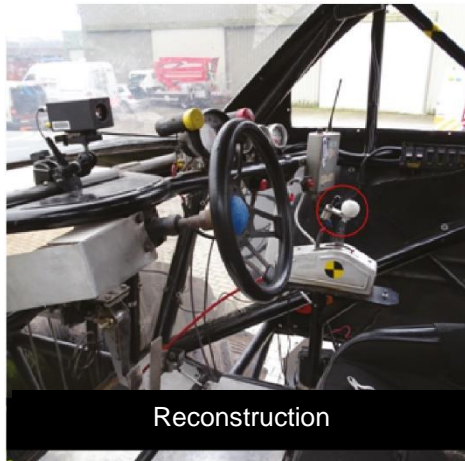
3D Modeling



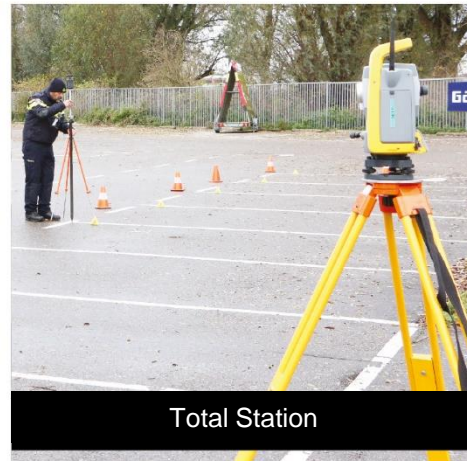
Virtual Reality



Drones



Reconstruction



Total Station



Detail Recording



Large scale Incidents



3D Scanning

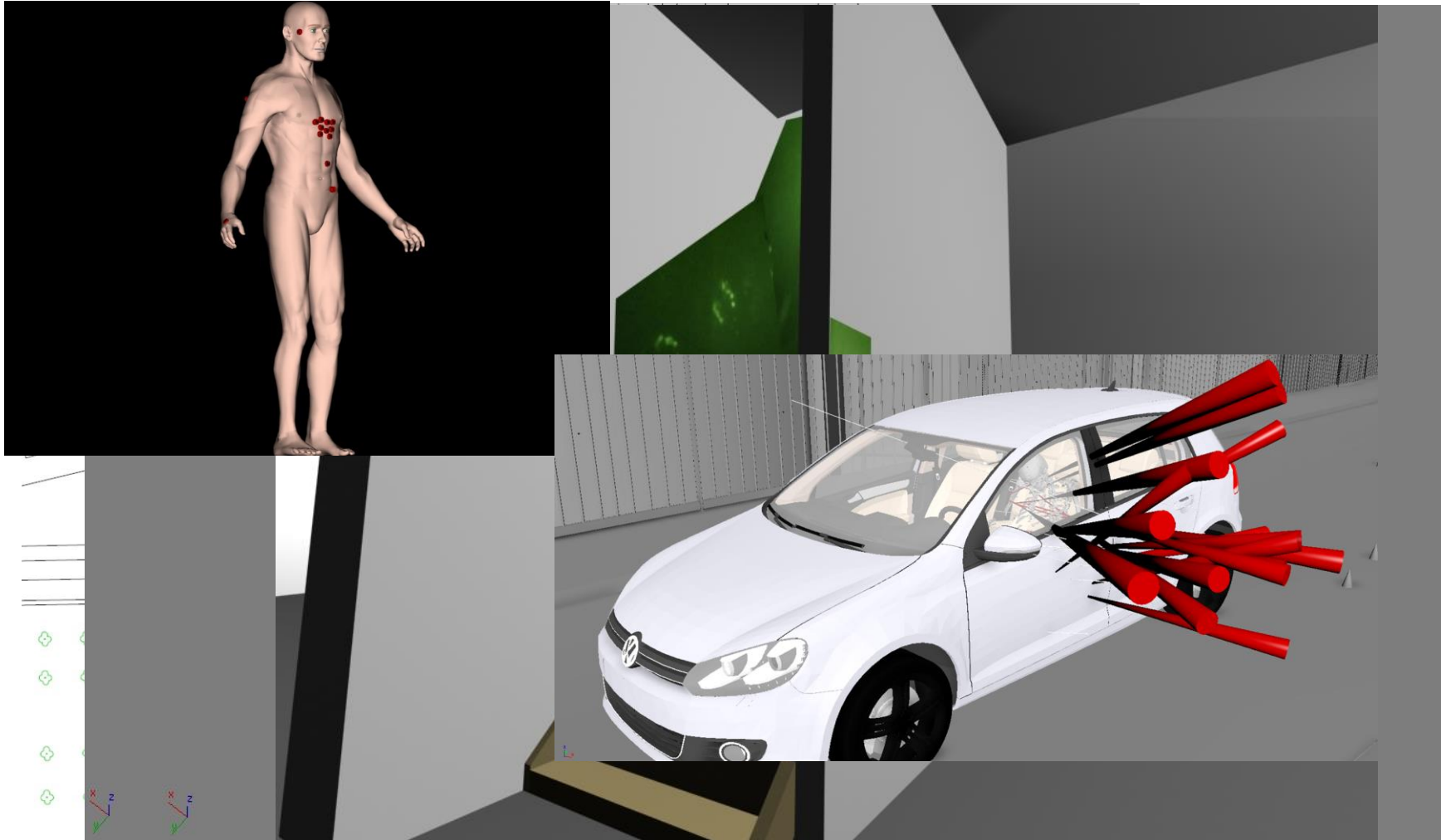


Recording and Visualization





Recording and Visualization





Legislation



- ◆ **Starting use of a UAV in 2006 (Airrobot)**
 - ◆ For Aerial Photography
 - ◆ Tryout



1st Generation
Bad Support
Lots of Bugs (GPS, Ground recognition)
Payload





History UAV



Size 82 cm
Payload 750 gr
Flighttime 10 - 15 min
Range 1 km
Wind load 10 m/s





Size 60 cm
Payload
Flighttime 15-20 min
Range 5 km
Wind load 22 m/s





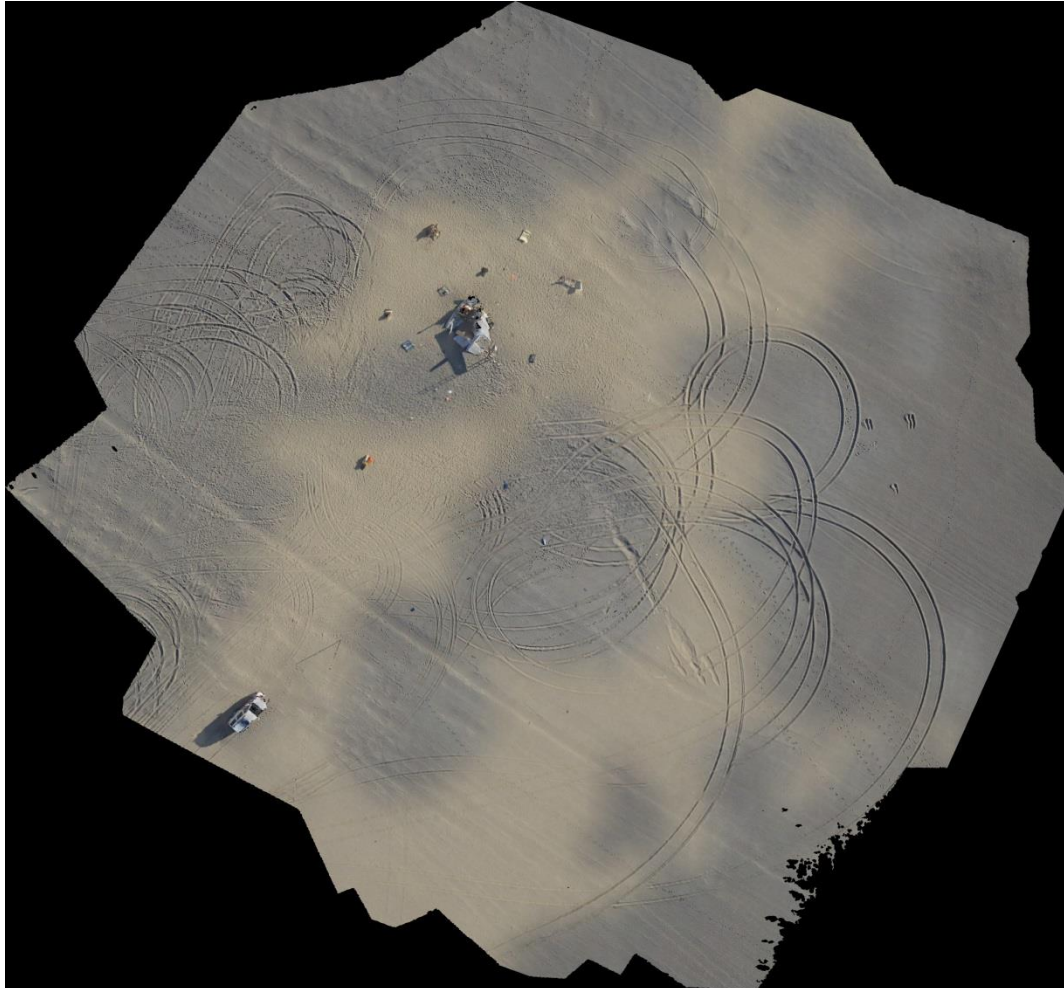
Pointclouds from Pictures



Crash small aircraft



Pointclouds from Pictures





Fotovlucht met beide benen op de grond

zijn foto's genomen vanuit kleine, onbemande helikopters bruikbaar voor het verrichten van kadastrale metingen? Door samen met het Korps Landelijke Politie Diensten (KLPD) en het Nationaal Lucht- en

Politie en Brandweer heeft het NLR al de nodige ervaring opgedaan. Het Kadaster is



Pointclouds from Pictures

ArcTec AutoPilot Control v1.60 - (C) ArcTec
Tools Average Windows Update Parameters From File
ArcTec AutoPilot - Live Waypoint Control

Latitude: 52.0895826 View 8
Longitude: 6.3448647
Height: 20m

GPS Quality: 95% Flight
Battery: 12.51V 97%

ArcTec AutoPilot Control v1.60 - (C) ArcTec
Tools Average Windows Update Parameters From File
ArcTec AutoPilot - Live Waypoint Control

Latitude: 52.091336 View 8
Longitude: 6.3441081
Height: 20m

GPS Quality: 93% Flight
Battery: 11.00V 100%

Latitude
Longitude
Height



Mission Control

Start mission

Go to Waypoint

waypoint nr: 1

Endless Loop

About mission

Mission Status: ●

Commands: Main Editor
Do Panoramic
Point Camera Down
Come home

Waypoint List

- wp1
- wp2
- wp3
- wp4
- wp5
- wp6
- wp7
- wp8
- wp9
- wp10
- wp11
- wp12
- wp13

Manually Add Waypoint

Manually Add Placemark

Add current position

Placemark List

Navigation Status

wp_status: 15
Distance to wp: 0.0 m

Distance to POI [m]: 20

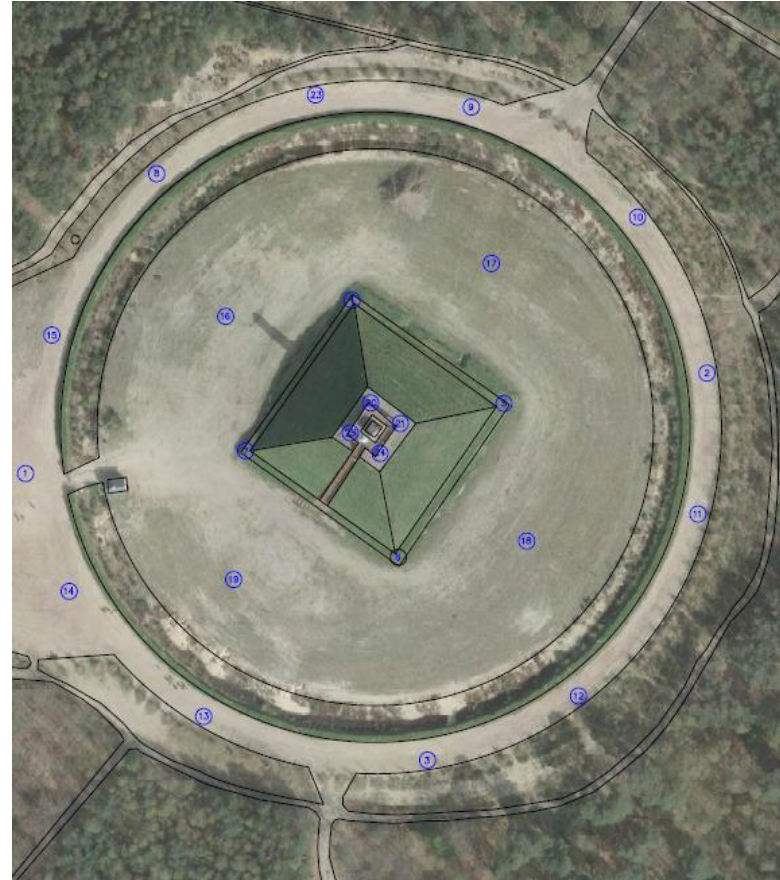
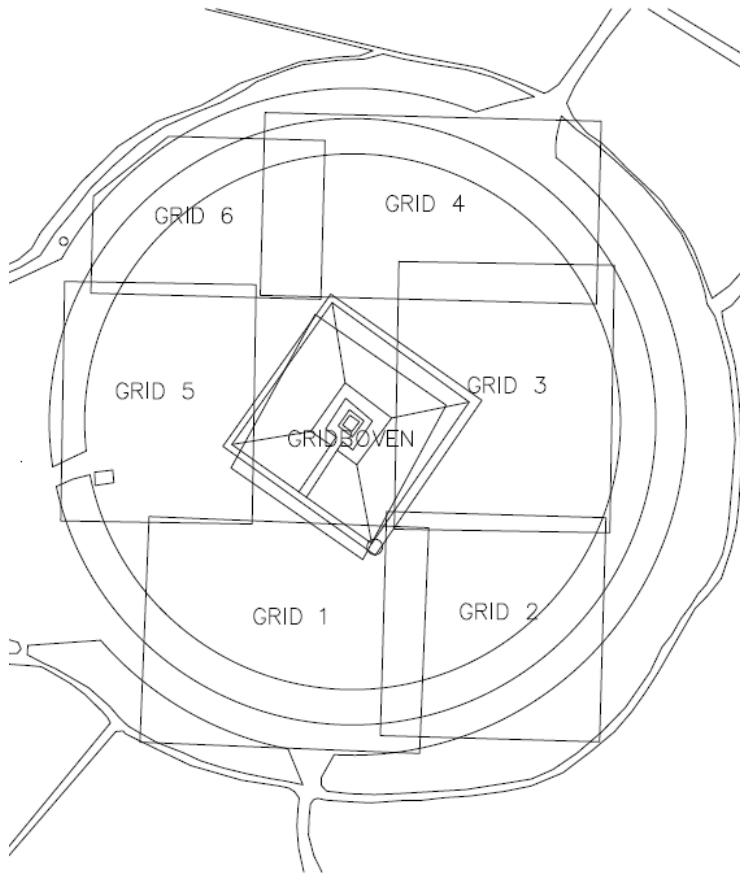
Camera FOV [°]: 45

Generate

Stop Logging



Pointclouds from Pictures





Pointclouds from Pictures

- ◆ 500 pictures
- ◆ Each Flight takes about 10 min
- ◆ After optimising ~ 3 cm accurate
- ◆ 28.000 m²



- ◆ Other examples



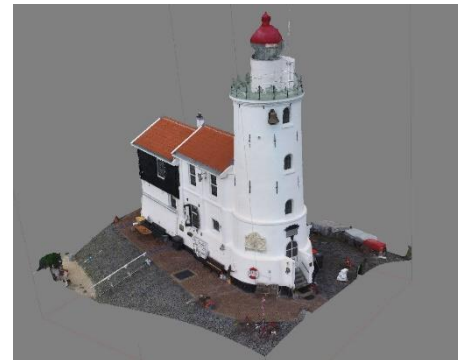
- ◆ **Overview**

- ◆ In detail and on scale



- ◆ **3D Models**

- ◆ For example use in VR



- ◆ **SCAR**

- ◆ System for recording large scale incidents



Cases and VR



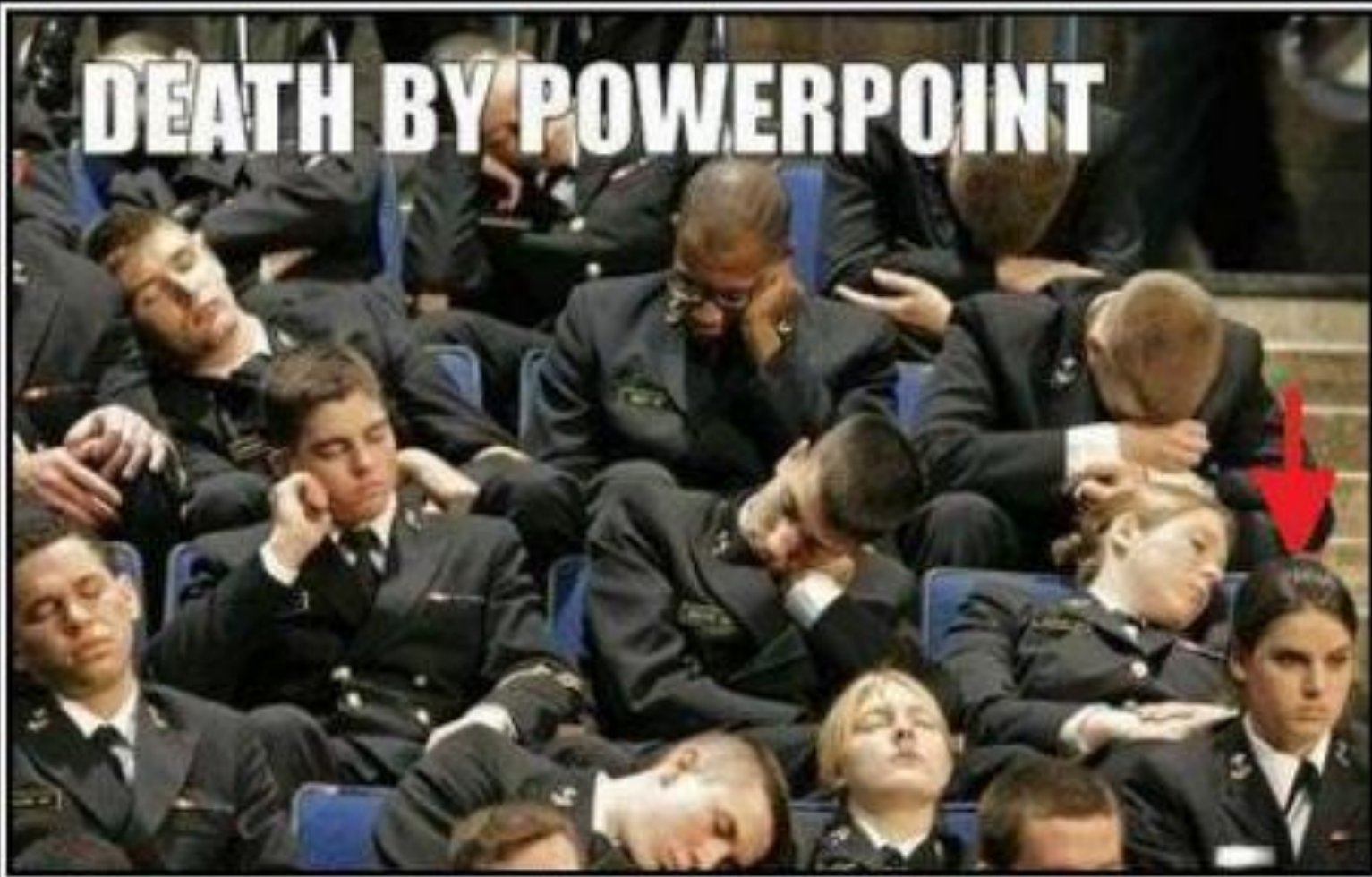


UAV's and the Public

- ◆ They can fly indefinitely
- ◆ Autonomic decision making
- ◆ Supercamera's
 - ◆ 1000 meter zoom, see through wall ect



DEATH BY POWERPOINT



99%
COMPLETE