Living Lab Assen

Hanze University of Applied Sciences Groningen

Hanzehogeschool Groningen University of Applied Sciences

D·C DRENTHECOLLEGE.NU

htsm HIGH TECH SYSTEMS & MATERIALS NORTHERN NETHERLANDS

Alvimedica back to life!

WZA Wilhelmina Ziekenhuis Assen Vertrouwd en dichtbij

TT CIRCUIT ASSEN

Stichting Sensor City

GRONINGEN AIRPORT EELDE

NAM

ASTRON Netherlands Institute for Radio Astronomy

incas3

HIT Hanze Institute of Technology

Institute of Engineering, Assen

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share your talent. move the world.

Institute of Engineering

Hanzehogeschool Groningen
University of Applied Sciences

HIT
Hanze Institute of Technology

- **Bachelor Advanced Sensor Applications**
- **Master Sensor System Engineering**
- **Research : CENSI (the Centre of Excellence for Intelligent Sensor Innovations)**

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What is Sensor Technology?

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What is Sensor Technology?

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Sensor technology is everywhere.

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- **Bachelor Programme**

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ASA: a special Engineering programme

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Electrical and electronics engineering
Major: Advanced Sensor Applications

Similar to a normal Electrical Engineering programme,
PLUS :

- Specialisation in sensor technology, including ICT and Data Analysis
- Honours programme
- Active participation from leading technology companies
- Professional skills
- International programme

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ASA: a special Engineering programme

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TNO innovation for life

PHILIPS sense and simplicity

NAM Bron van energie

ASTRON

inCAS3

Gemeente Assen

provincie Drenthe

Sensor City

Stichting IJkdijk 0,235 0,217 0,199 0,181 mNAP

PRIVA

umcg

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ASA: a special Engineering programme

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honours programme

- Students must demonstrate organizational and leadership skills and contribute to society
- 100% of the ASA students are involved in the honours programme…
- …while only 5-7% of all Hanze University students are involved in an honours programme

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ASA: a special Engineering programme

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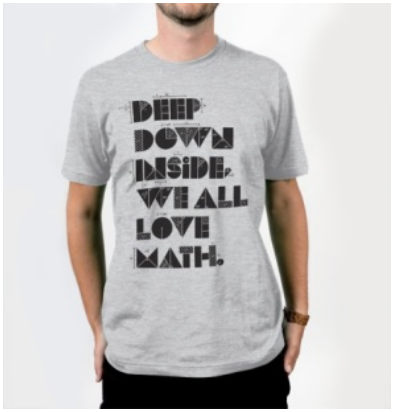
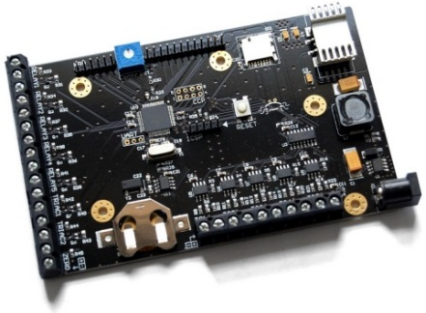
Learning lines

- Mathematics
- Electronics/Sensors
- Data analysis (Statistics, DSP, Control Theory)
- Programming & Robotics
- Research skills (applied research)
- Engineering design (Human Technology/Engineering)





- Physics
- Chemistry
- Biology
- English
- Project Management
- Professional Skills
- Entrepreneurship (incl. Marketing)

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ASA: a special Engineering programme

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5. students from all over the world :

- Netherlands
- Brazil
- Bulgaria
- China
- Finland
- France
- Germany
- Indonesia
- Italy
- Latvia
- Nigeria
- Poland
- Ukraine
- United Kingdom
- Romania
- Zimbabwe

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Career perspectives

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Expectations of industry:

- Technical Designer
- Technical Advisors
- Project Leader
- Academic Researcher
- Set-up a new company

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Career perspectives

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An Engineer who has graduated at ASA has

- Excellence at the cross-over of **ICT** and **electronics**
- A deep **technical** knowledge, and also a broad **contextual** understanding
- Understands the importance of **data analysis** and **mathematical modelling**
- Broad **professional skills**
- **Entrepreneurial** behaviour

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- **Master Programme**

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Master Sensor System Engineering

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- Starts September 2015
- 70 credits plus premaster (0-30 Credits)
- Title: Master of Engineering
- International
- Honours programme
- On top of ASA bachelor (3+1 route)
- Sensor Technology with specialisation in Health

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Master Sensor System Engineering

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- Smart processing of an enormous amount of data coming from sensors
  - Sensors used in healthcare
- Designing applications beyond the prototype stage
- Focus on social trends and technological developments:
  - Big data, sensor services, extreme analytics, etc.
- Advanced training of technical and profession

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Master Sensor System Engineering

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- Linear Algebra
- Modelling and Simulation
- Advanced Data Analysis
- Data Centric Architectures
- Products and Services in Health
- Sensor Applications in Health
- Master thesis
- Professional Skills
- Research & Ethics
- Community Contribution

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- **Research Department**

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Projects

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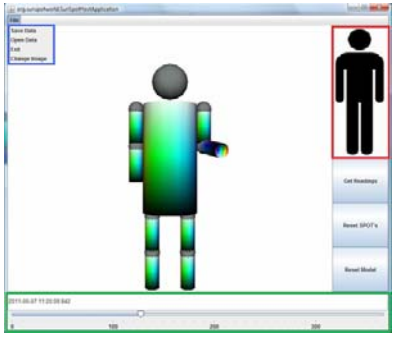
- Healthcare
  - Urine analyser, UMCG
  - Continuous blood pressure monitoring
  - Mytyl school
    - Eye tracking
    - Hand pressure
  - Limb movement, Physiotherapist
  - Elbow measurement , CARES
- Autonomous systems
  - INS, Fire department
  - Flying carpet, Airport Eelde
  - Rhino project, African Wildlife Capital



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Tooling

- 3d Printer
- PCB milling
- Laser Cutter

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Anti-Rhino poaching

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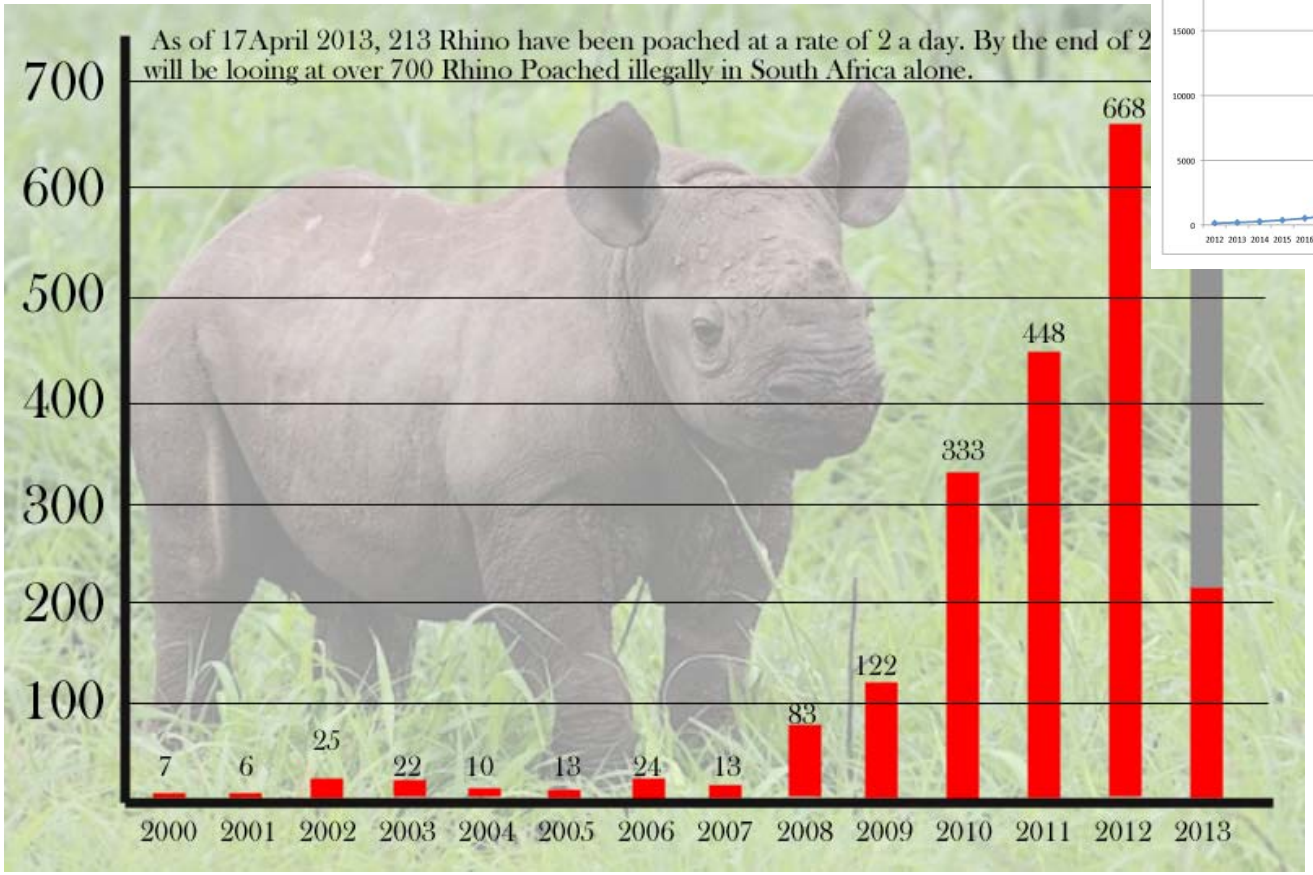

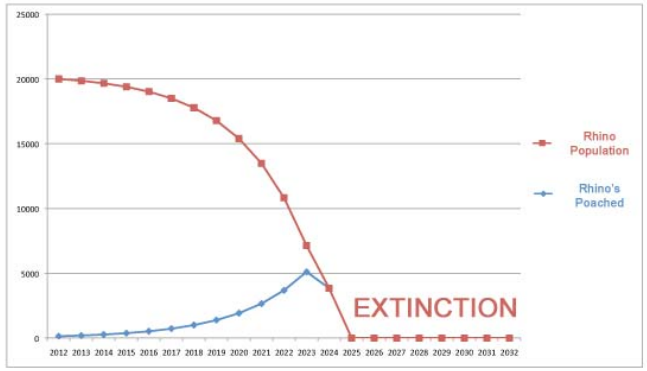

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Inertial Navigation System

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- Inertial navigation
  - Firemen / Police
  - Independent of external signals
  - Dead reckoning
  - Last GPS signal is starting point

- How does it work?
  - Measures acceleration, rate of turn and the magnetic field
  - Translate this data into acceleration
  - Integrate acceleration into distance
  - Send data

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- Kalman Filter
- ‘ZUPT’ Correction method using footstep detection

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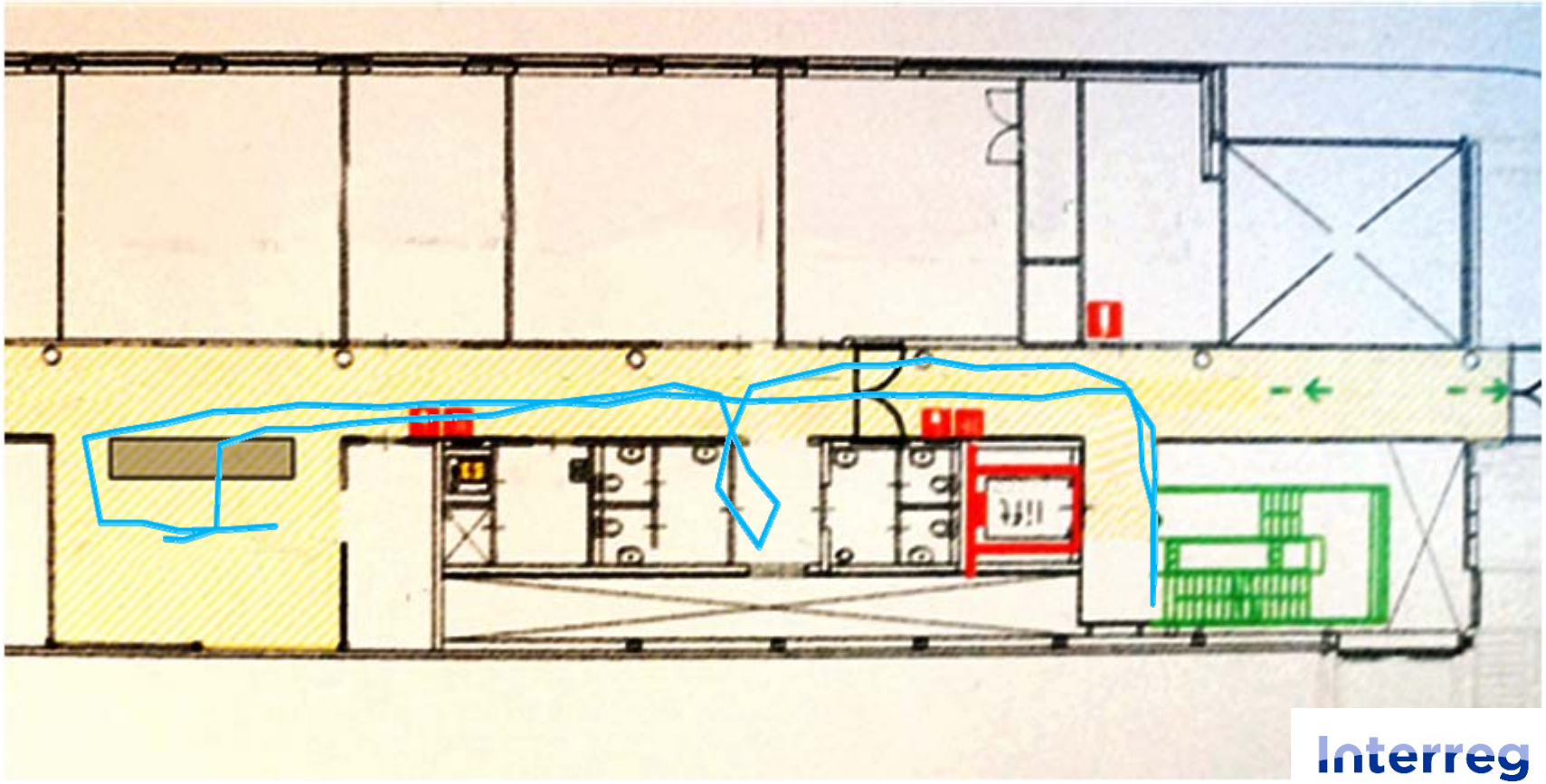

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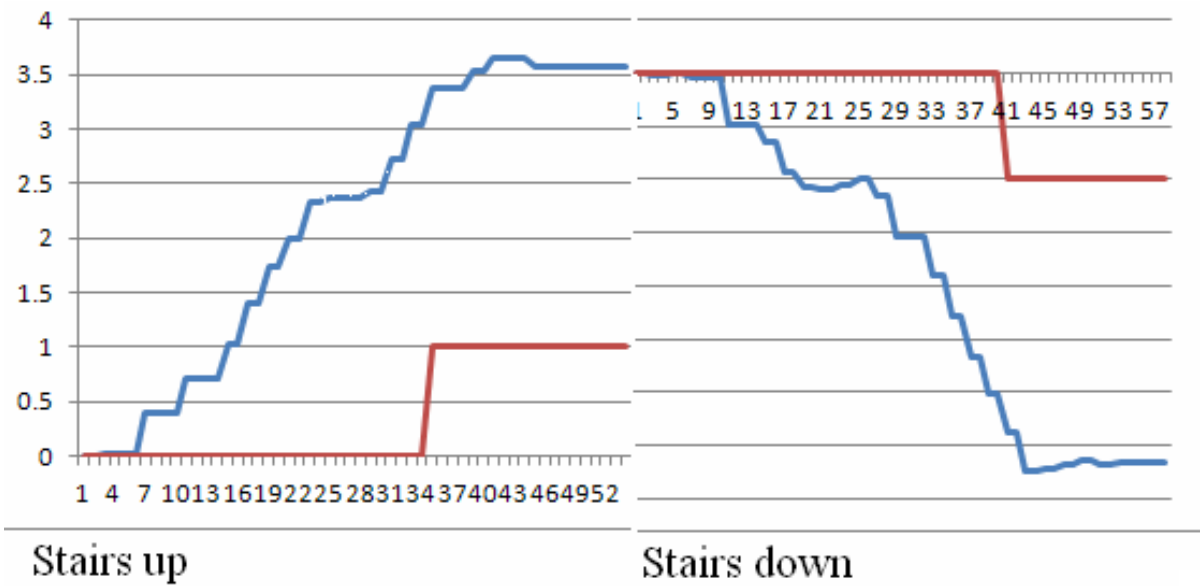

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Components

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- Shoe
- Backpack
- Tablet interface

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