Innovative technical Solutions BV

Extraordinary camera systems

Mission

Innovative Technical Solutions BV develops and produces advanced camera technology for vision in complex environments.

Vision

ITS BV is a flexible, independent and leading company that makes sensor technology accessible in modular elements, for a worldwide customer base through own R&D, production and creation of IP to secure quality.

Introduction

- Founded in 2012
- Background in high-tech engineering, development and embedded systems
- Development and production of high end camera systems
  - Night vision, image intensification
  - Thermal, SWIR/MWIR/LWIR
  - Multispectral fusion
  - High Dynamic range
  - Laser range gating, vision in degraded visual environments
  - Extreme High Resolution video
- Part of El Ninjo investment group since 2016
  - https://elninjo.nl/

Structure and markets

- 2012-2017: Consultancy and paid projects (TNO, ZiuZ, National Police)
- Sept 2017-present: Changing business proposition to own product portfolio (70%) and development services (30%) new CEO/Sales director, focus on sales and preparing for growth (company structure, personnel, procedures and processes).
- R&D, Engineering, Production and Sales (presently 9 employees)
  - Small in-house production capability (small series; <1000 units per year)
  - In-house assembly
- Sample units and development kits sold since April 2018
  - Prime OEM's
  - Tier 1 and 2 suppliers
- Preparing for large qty series in near future (1 to 2 years)

Services

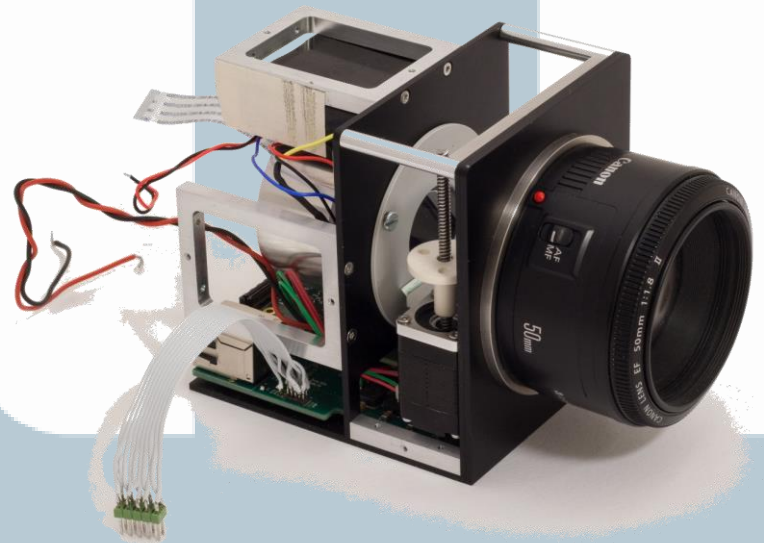
Development of functional modules and turnkey solutions

- Core-business is development of hardware platforms and firmware/software for advanced high-speed imaging
  - Cobalt
  - Ferro
  - Indigo
  - Quartz
  - Vipera
- Current product development is focussed on high end cameras, CMOS, image intensified CMOS, LWIR/SWIR, and Extreme low latency image sensor fusion. Portfolio is growing.
- Development project with undisclosed UK (maritime) prime on laser range gating system, for under water and degraded visual environments
  - Ceratio

Services

Rapid prototyping, customer specific development

- To reduce time to market for customers, ITS has a “technology database” with operationally proven modules.
- ITS quickly develops and builds prototype solutions with CMOS imagers, micro-bolometers, image intensifiers and all other micro-electronics required
- Our specialized knowledge of high-speed FPGA design and VHDL based firmware enables system-on-chip approach for almost all problems.



Competences

Night vision

- When Standard Low Light Level CMOS cameras are insufficient ITS offers Pulsatrix, ICMOS solutions.
- Images are captured and transferred to the digital domain by fast, low noise, Wide Dynamic Range CMOS image sensors.
- In depth knowledge on High Voltage Power Supply units and Image intensifier technology. In house development of HVPSU.
    - Roadmap => High resolution ICMOS, Pulsatrix V2.

Competences

Thermal Cameras

- Infrared cameras, SWIR, MWIR or LWIR, have fundamental different properties than visible light cameras. Thermal radiation is always present and offers a sharp image during night and day.
- LWIR (Vipera) 17 micron and 12 micron under development, Q1 2020 Vipera 17 release, Q3 2020 Vipera 12 release.
- SWIR (Speculo; 64x64 pixel, 1000fps) camera have been developed.
- Extended experience with integrating thermal cameras into image sensor fusion platform INDIGO. (FLIR, DRS, Device Alab)

Competences

Enhanced vision systems

- Image intensifiers and active illumination is a very powerful combination. If all timing is right, it provides fog, snow or dust penetrating visibility.
    - Laser range gated systems require in-depth knowledge of image intensifiers and subsequent image processing.
- Colour night vision is possible by combining multiple light sources and accurate range finding can be made to be one of the system's outputs. Proof of concept project together with TNO.

FUSION OF THERMAL WITH INTENSIFIED CMOS

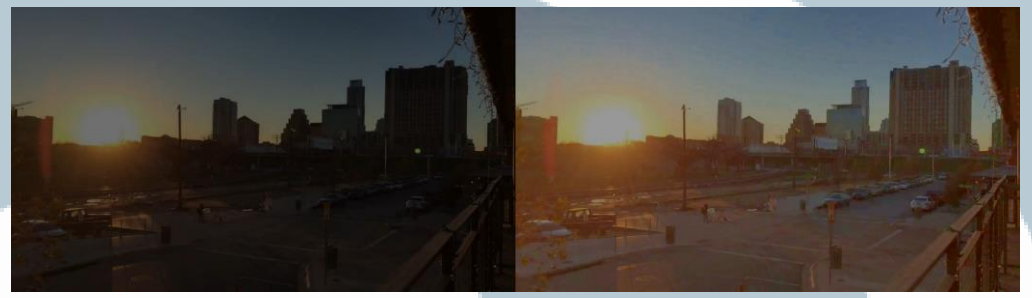
Competences

FPGA design accomplishments

- High speed and Real time video processing IP like ShadowBoost™
- Sensor overlay for crosshairs, text etc.
- White balance, gamma correction, digital zoom, exposure control etc.
- Video enhancement, contrast, edge
- Real time deconvolution
- Video outputs, HDMI, HD-SDI, BT1120, BT656 standards, Cameralink etc.
- Real time (multi-spectral) image fusion
- Colour processing and calibration
- Research is progressing on AI based video processing on FPGA

Competences

FPGA design accomplishments



ShadowBoost™

Online movie showing the Power of ShadowBoost

Virtual Iris™

Online movie, combined power of ShadowBoost and Virtual Iris

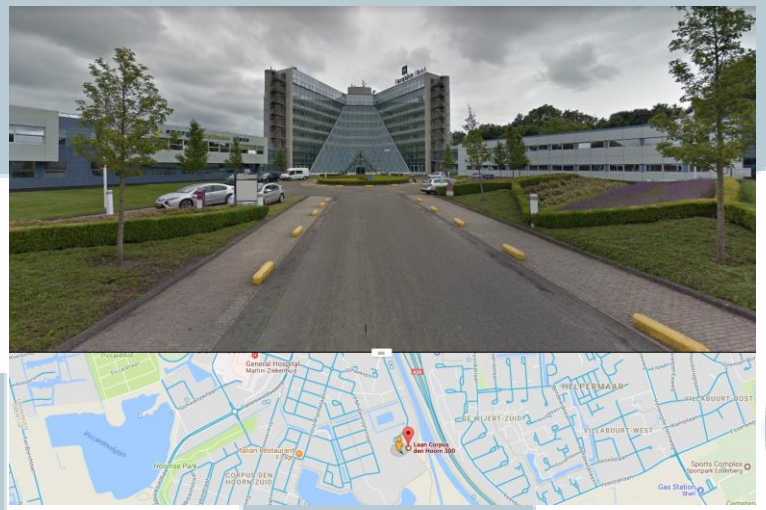
Combined power: Virtual Iris protecting the tube from bright light and ShadowBoost revealing the details, real time protection and enhancement.

Sneak peek Vipera (QVGA 17 micron, shutterless).

Roadmap

- ITS is presently developing Vipera on 17 micron technology.
  - Expected release end of Q4 2019
- Mid 2020 release of Vipera 12 micron technology
- Pulstarix V2 (update in resolution)
- Commercializing Ceratio (under water laser range gating)
- Above water laser range gating

Contact details



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