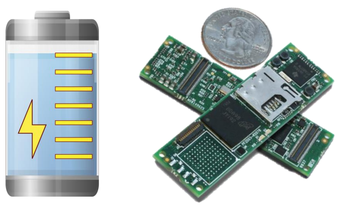
Fraunhofer IOSB

FRAUNHOFER INSTITUTE OF OPTRONICS, SYSTEM TECHNOLOGIES AND IMAGE EXPLOITATION

EU Project Tulipp: Towards Ubiquitous Low-power Image Processing Platforms

Motivation / Need

Main constraints for vision-based embedded systems



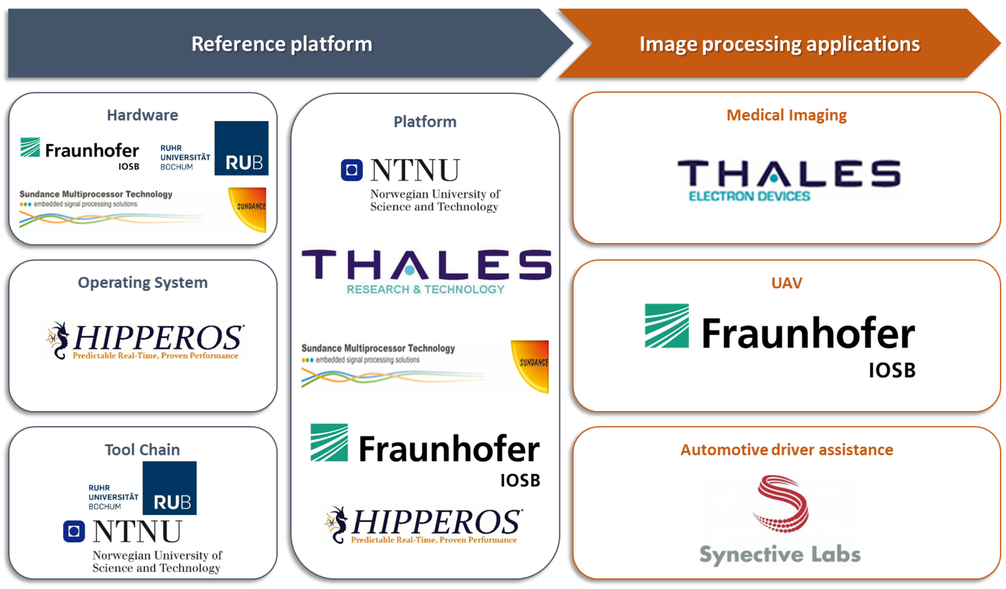
Embedded Constraints

Time-to-market / Cost-sensitive

Goals

- Providing a reference platform with
  - a reference HW architecture – a scalable low-power board
  - a low-power operating system and image processing libraries
  - an energy aware tool chain
- Providing guidelines based on expertise from
  - embedded system development
  - image processing domain
- Providing three use cases as insight generators

Tulipp value chain

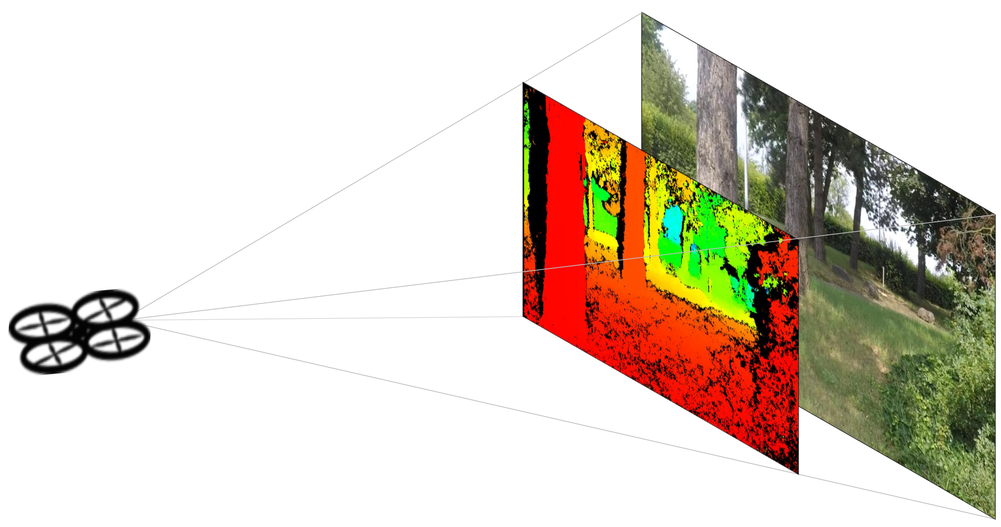


Low-Power Image Processing Ecosystem

- Building up ecosystem to extend image processing norms
- Join the Advisory Board like other industrial companies, e.g. ARM (USA), NCTech Ltd (UK) and Vision Nerf (France)!

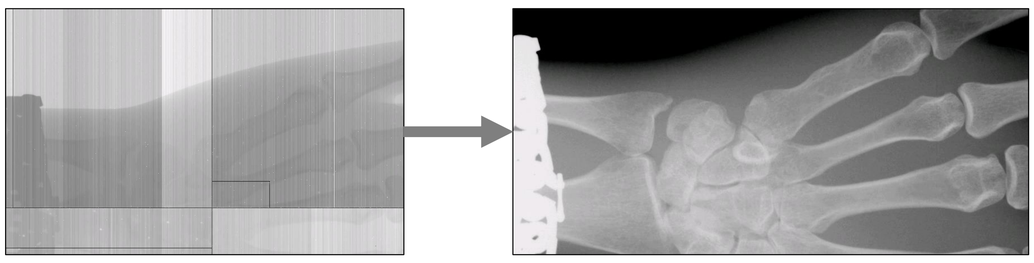
UAV Use Case

- Goal: Obstacle / collision avoidance
- UAV with stereo camera set up
- Real-time stereo depth estimation with Semi-Global-Matching (SGM)
- Exploit key performance/power factors for different hardware setups including CPU, GPU and FPGA

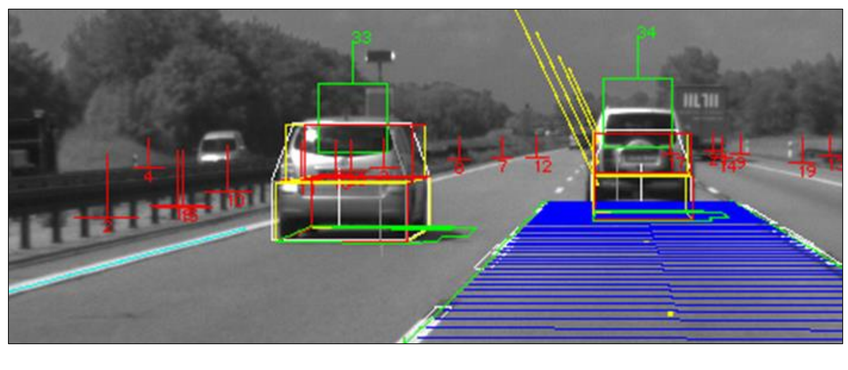


Additional Use Cases

- Medical: Real-time x-ray image enhancement



- Automotive: Advanced driver assistance



Further Information

- Visit Tulipp website at www.tulipp.eu or contact us at contact@tulipp.eu
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