Enabling CV & AI on the edge with milliWatts
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Background

Vision System on Module

Toolchain Flow

Network Details

 MCU Market History and Forecast

Visual and IR imagers

Optimized firmware

Low Cost, Short Time to Market

Hardware

Vision on Module

- Himax HMB010
- IR LED
- Image Sensor
- 3 Color LED
- Lattice ICE40UP5K FPGA

- Inversense 6DoF IMU
- Knowles I2S Mic
- 0.5 MB Flash
- 8 MB SRAM

Ultra low power Processing Core
(Lattice ICE40UP5K FPGA)

- 4Mb qSPI Flash
- 3 color LED
- Low power Image sensor (PA6100)
- DDR FMU IC 20569
- 1.2V 3.3V LDO
- High power IR LED
- Alternate Image sensor connectors (HMB010, OVC7670)
- USB/SDMI Mic
- Glue logic

Data Downloaded

Resample to 4kHz

Audio Dataset

Feature Extraction

Feature Extraction

Training/Validation

Keyword Detection

Inference

Fractile Graph

Network Details

- 1.04 seconds @ 8kHz [2020.1]

- [8,124]
- [9,245]
- [10,12]
- [11,32,20]
- [12,16,30]
- [13,16,20]
- [14,16,20]
- [15,16,20]
- [16,16,20]
- [17,16,20]
- [18,16,20]

- [8,124]
- [9,245]
- [10,12]

- Feature Extractor Weights

- Keyword Detection Training/Validation

Availability

Vision FPGA SoMs are at pre-launch on
CROWDCO SUPPLY

https://www.crowdsupply.com/tinyvision-ai/vision-fpga-som