PSA
PROFESSIONAL SOFTWARE ASSOCIATES, INC.

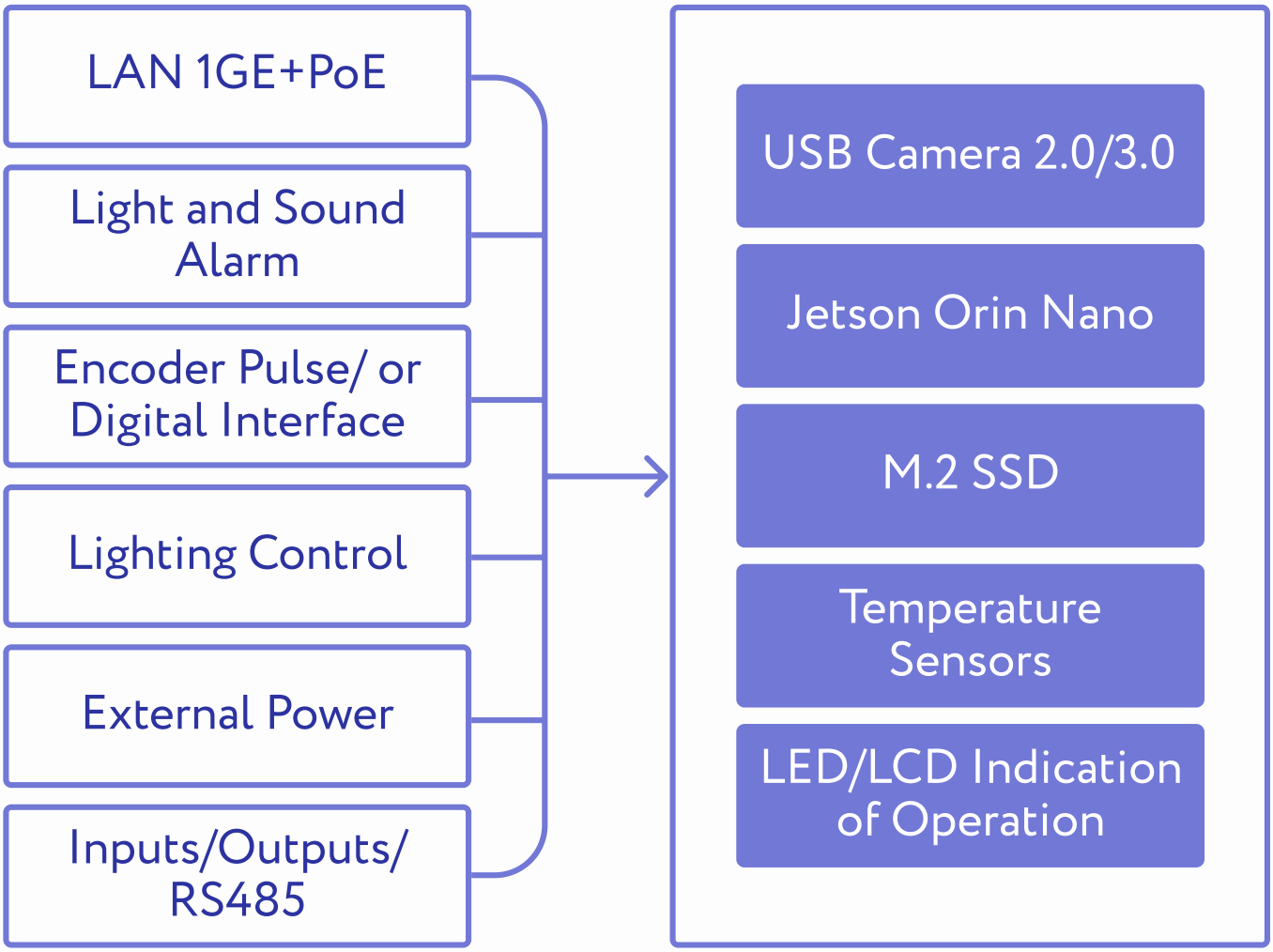
BUILT-IN AI FOR DEFECT DETECTION DEVICE

Datasheet

PROVIDING SOLUTIONS FOR TOMORROW – SINCE 1993

Project objective

Check the possibility of the current Machine Vision System to perform AI computing within a device. Assess the neural network performance on NVIDIA Orin Nano processor module and provide complete efforts estimation on the redesign of the existing solution.



Result

The client gained a complete documentation packet to proceed with product redesign. It includes a project plan and risk plan, a quote with future project estimation, an architecture description, and product cost estimation. The newly-architectured system is an elegant defect detection solution where AI computing is performed on the edge. It allows to free industrial network from transferring huge amounts of video data to the server, simplify mounting, and avoid errors during data transfer.

Scope of work

- A purchase of Nvidia processor module & environment setup
- Preliminary firmware source code migration from the initial solution
- Adjustments for the modified product regarding image quality, video recording acceleration, device protection, power consumption, licensing, new standards support, and alarm control
- Work Breakdown Structure creation
- Main components selection, including optimal ready-made enclosure requiring minimum modifications

Activities

- Board procurement
- Architecture design
- Firmware migration
- Components selection
- Documentation creation

About the project

Technologies

- Nvidia JetPack SDK
- USB
- Ethernet
- CART
- SPI

Platforms

- Nvidia Jetson Orin Nano 8GB Development Kit
- ARM Cortex-A78AE + 8GB RAM
- Embedded Linux

Project size

- 2 SW Engineers

Duration

4 months