

VAVE and Re-engineering of Electric Actuator to Enable Cost-Effective Production



Problem Statement

A Japanese motion control OEM manufactures a wide range of motors, electric actuators, and controllers for various industries. One of its flagship electric actuator range was using certain end of life components. Further, the actuators were limited in their communication interface options, leading to push back from salespeople looking to position the actuators in the IIoT world. The client wanted to extend the lifetime of this actuator range given the popularity and market penetration.



Challenges

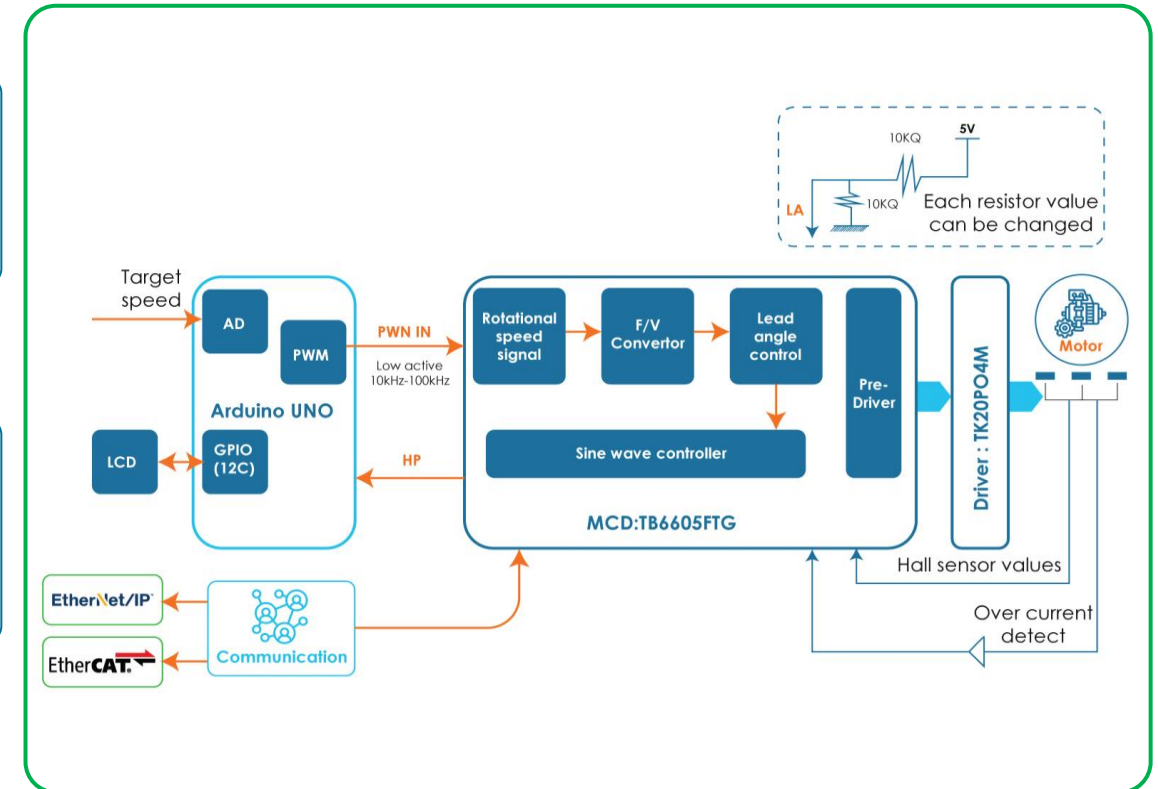
- Production of the actuators faced an imminent halt due to dependency on obsolete components
- Dis-continuation of the actuator range was probable, but would mean a significant loss of RoI
- Given the market penetration and customer trust, re-engineering was perceived as very risky as it could lead to impacting key features and functionality
- Lack of in-house device engineering capabilities



Solution

Utthunga suggested performing a VAVE (Value Analysis Value Engineering) of the electric actuator range. Utthunga's solution included:

- Careful selection of new components in place of the obsolete components
- Suggested a latest upgraded SoC with advanced functionality
- Redesigned PCB to meet various certification and specification aspects
- Developed two variants that are compatible with EtherCAT and EtherNet/IP protocols
- Redesigned the encoder for better accuracy and sensor feedback
- Reused the existing algorithms to maintain the functionality with upgraded microcontroller



Benefits

The VAVE and re-engineering performed by Utthunga reflected following direct benefits:

- Immediate 6% reduction in the BoM (Bill-Of-Material) cost
- Increased connectivity options led to IIoT-Ready perception change in the market
- Extended the lifetime of the actuators, one of client's popular and fast selling range

