

AIR DATA UNIT (ADU) DESIGN



THE CLIENT

The client is a market leader in defense sector.



BUSINESS NEED

The client envisaged to design an Air Data Unit (ADU) which is a device that measures aerodynamic parameters (air data) such as air speed, altitude, air temperature etc for defense industry. ALTEN Calsoft Labs designed ADU hardware and software around TI DSP and Holt ARINC controller including implementation of ARINC 429 protocol. Its features include:

- ⦿ A hardware design that would meet all functional and statutory defense requirements so as to match with the specifications of an existing imported unit
- ⦿ To have the hardware supporting the ARINC 429 protocol
- ⦿ Stringent MIL grade certification



TECHNOLOGY USED

- ⦿ **Hardware:** TI DSP 2812, RS232, ARINC interface, GPIO, DAC, ADC
- ⦿ **Software:** DSP Firmware, Code composer studio, ARINC 429



SOLUTION DELIVERED

ADU measures static and differential pressures using 2 pressure sensors and impact pressure using the temperature probe (PT-100). ADU transmits these air data parameters via two identical ARINC 429 digital lines.

Provision is also made to calculate according to pin-program, correct & incorrect air data. ADU has built-in features for self tests to check the hardware and software integrity.

Architecture of ADU is centered on TMS320F2812 DSP chip, which is interfaced with temperature and pressure sensors. DSP performs complex arithmetic based on pressure readings to calculate various aerodynamic parameters.



BUSINESS BENEFITS

- ⦿ Precisely accurate

ABOUT ALTEN CALSOFT LABS

ALTEN Calsoft Labs is a next gen digital transformation, enterprise IT and product engineering services provider. The company enables clients innovate, integrate, and transform their business by leveraging disruptive technologies like mobility, big data, analytics, cloud, IoT and software-defined networking (SDN/NFV). ALTEN Calsoft Labs provides concept to market offerings for industry verticals like education, healthcare, networking & telecom, hi-tech, ISV and retail. Headquartered in Bangalore, India, the company has offices in US, Europe and Singapore. ALTEN Calsoft Labs is a part of ALTEN group, a leader in technology consulting and engineering services.

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