**BLCD Motor Control:** This project was built to control the BLCD DC motor using a mobile app that is physically connected through Ethernet. Scope of this project was building the electronics hardware, Firmware and Android mobile app. Electronics hardware was design using STM Cortex M4 Microcontroller, IMU, Encoder, Ethernet hardware and TI DRV BLCD motor drive chip. Firmware was implemented using C programming language with layered architecture such that the code can be ported to any other microcontroller with minimum code development. This project was built to work in both Velocity and Position mode with an accuracy of 0.1mm. This was designed to control Welding Machine for a reputed USA based Oil and Gas equipment manufacturing company.

**Elevator Mother Board:** This project was built to control Elevator car. It has option for RS485 communication for all the landing and car call panel. In parallel mode this board can support upto 11 floors and in serial Mode it can support upto 32 floors. It has all the safety switches that are required for the elevator smooth operation. It was built using 8 bit microcontroller, since the customer wanted a very low cost board that can suit Indian elevator market. It has an LCD where all the functions and error of the elevator is displayed. This would easy the service and quick turnaround in case of elevator breaks down.

**Altimeter**: This project was built to find the altitude of the fighter jet aircraft. This was designed based on the principle of negative pressure that is built in the cabin when the aircraft is flying high or on the ground position. Scope of the project was to build a Altimeter sensor and drive an Analogy output that is not weakened upto three meters. Project was build using Analog Devices Cortex microcontroller and differential Pressure sensor which was housed in an air tight container. Program was developed using Embedded C and layer architecture was followed.

**OT Monitoring Device:** This project was designed to monitor the operation theatre parameter like room differential pressure, Temperature, Humidity and an intercom for conversation. On this device we can set the minimum and maximum set values for all the parameters, in case of extremes the buzzer will get activated with a appropriate ring tone and an alert will be send on the mobile app. This product was built for hospital supplier of a hospital who in turns manufactures this and sells across different countries.

**Bluetooth based pedestal alignment:** This project was designed for a semiconductor fab equipment manufacturing company. The propose of this device is to monitor the drift level in the fabrication plate that is inside the equipment. Drift to be measure was 0.001 degree, this device was designed using high precession single axis accelerometer and TI Tiva C series microcontroller. Program was developed using embedded C and layered architecture. The data was pushed in real time via a Bluetooth interface to an android based mobile app. We had to work on RF signals since the data communication should send out from equipment which was made of metal and air tight.

**Edge Detection using Camera for Food processing Machine:** This project was designed for fully automating the extract the chilly and pod. The scope was to design electronics hardware than develop a application firm with these functionalities Camera, Servo Motor control, Stepper motor control, CAN communication, RS48, Pneumatic controls, Encoder readings, ambient light control, pressure, temperature and humidity monitoring. Edge detection technique is use for various sensing of the chilly orientation, chilly exact pod location and chilly quality. Edge detection was implementing using grey scale conversion, Gaussian filter for image smoothing and Sobel filter for edge detection. Program was developed using embedded C, C++ and various design patterns architecture. Hardware was built using TI Tiva C series microcontroller and Omini vision camera module.