REAL-TIME EMBEDDED SYSTEM DEVELOPMENT FOR FLAME SCANNER

To avoid furnace explosions, the presence or absence of a flame while the fuel is being injected into the furnace is to be known. Only when a stable flame is present, the other subsequent actions for the control of the plant can be taken by the DCS. So the detection and communication of the flame condition to the DCS is very important.

A real-time embedded system was successfully developed by the team (in the photo) in collaboration with engineers from the BHEL-Tiruchirapalli division. The embedded system was developed in NIT-Trichy while the BHEL engineers provided actual flame data from the field measurements. The project had two components. One part, the signal processing components to detect the flame signal in the presence of noise and unstable conditions. The next part consisted of implementing the MODBUS communication protocol for the DCS communication.

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