

Abstract

This master thesis work deals with the designing of IoT wireless adapter for industrial analog transducers commonly used in Building Automation System (BAS). The adapter supports voltage signal 0-10 V, current signal 0-20 mA and passive resistive sensors. The IoT adapter is a gateway to wirelessly interface already existing devices in BAS.

Devices are available in market are for single transducers, therefore specific gateways are implemented to interface multiple similar transducers at different location at the same time with less cost.

The goal of this thesis is to design, prototype and test a NB-IoT adapter equipped based on the Espressif ESP32 microcontroller for analog interfaces. It includes circuit schematic design, bill of materials preparation and printed circuit board designed using KiCad tool. The cost analysis of each board is listed at the end.