NB-IoT LTE Module + MCU

IOT DEVICE

Rev. BG96_NB-IoT LTE v1.0
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TALLINN UNIVERSITY OF TECHNOLOGY

About the Document

History

Revision	Date	Author	Description
1.0	15-06-2018	Jeffrey Redondo	Initial

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1. Introduction

Development of algorithm to communicate BG96 Module with Nucleo board for investigation purpose in narrow band over LTE. The document describes the main characteristics of the physical connections and algorithm.

2. General Description

2.1 Product Description

The solution includes an algorithm written in C language for the boards Nucleo L0473 and L476 to communicate with module BG96 Quectel, and send data through NB-IoT LTE network to the cloud.

2.3 Pin Assignment

Figure 1 shows the pin assignment for the Nucleo and EVB Quectel Board. For more information, please cheek the datasheet of Nucleo and EVB Quectel board. For the EVB board, the jumpers needs to be soldered. The pin PC8 is used to turn on and off the EVB Quectel boards and Avnet shield.

In Figure 2, there are more descriptions about Avnet shield and EVB Quectel board. For making the Nucleo board functional for Avnet shield, the pins needs to be configured as Figure 1.

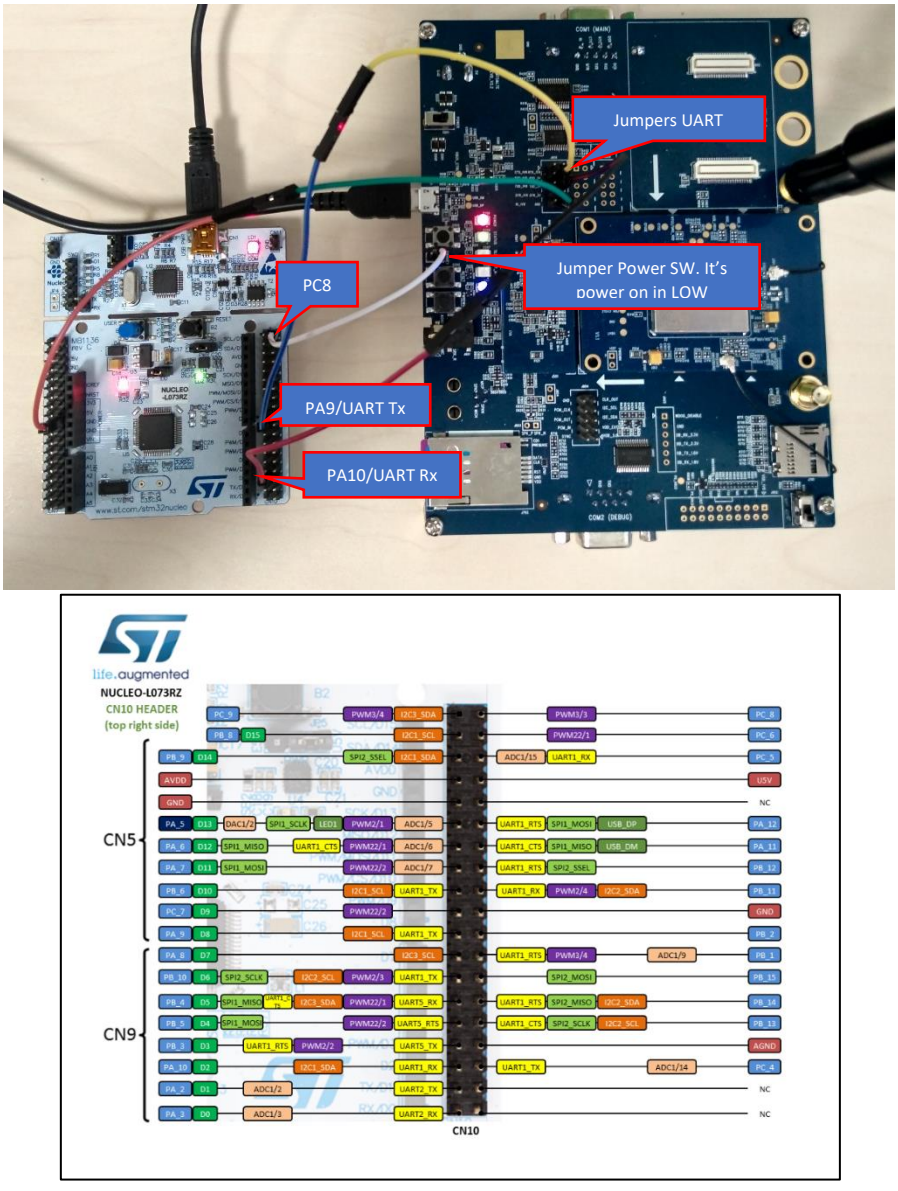

Figure 1: ***Nucleo L073 and EVB quectel Board.[1]***

Figure 2: ***Nucleo L476 and Avnet BG96 Shield.[2] [3]***

3. Algorithm

3.1 Description

The algorithm developed for the project controls the BG96 module by sending AT commands. In the next section there is a flow diagram of the algorithm.

3.2 Flow Diagram

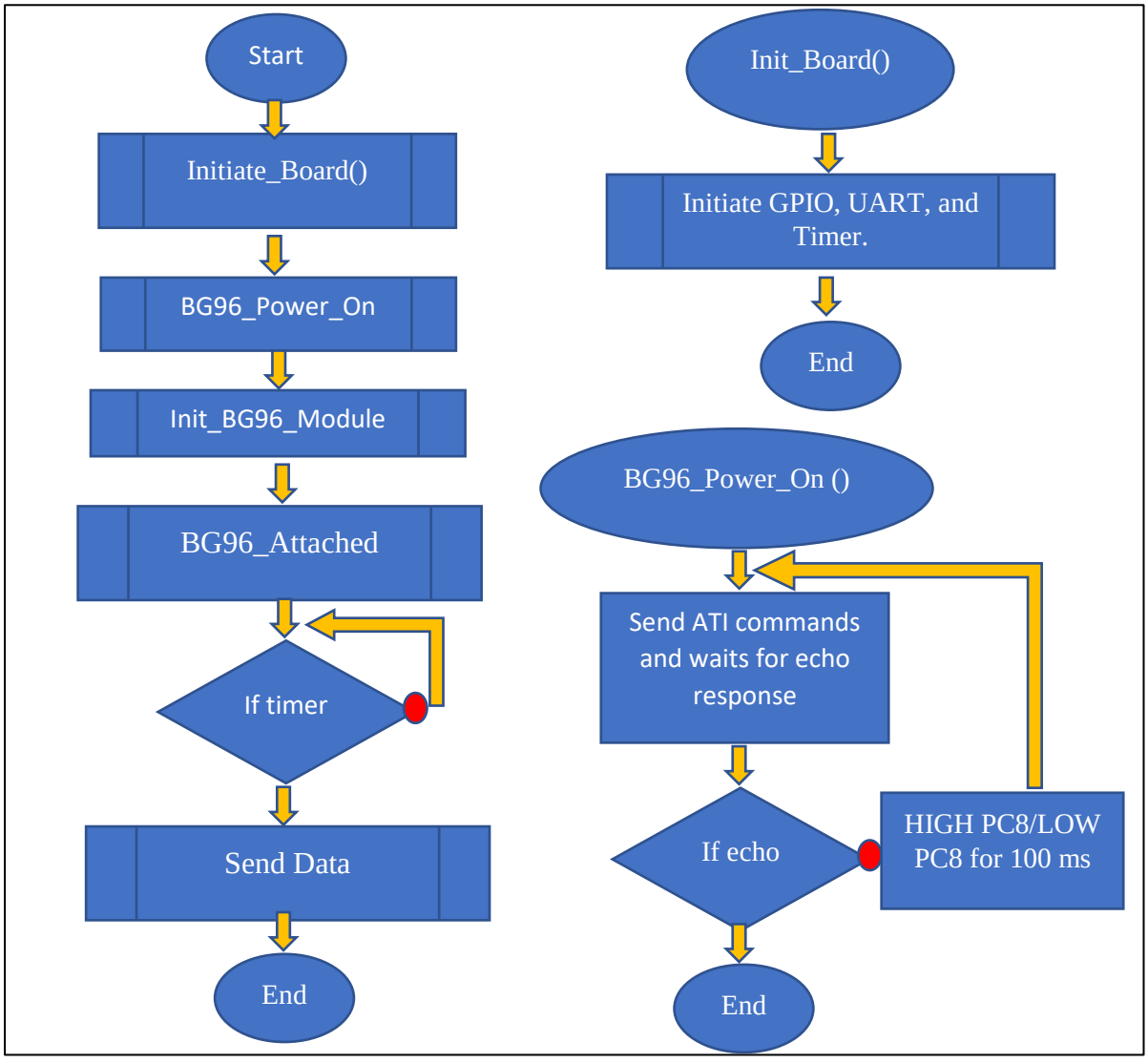

Diagram 1: Main algorithm, Init_Board and BG96_Power_On subroutine.

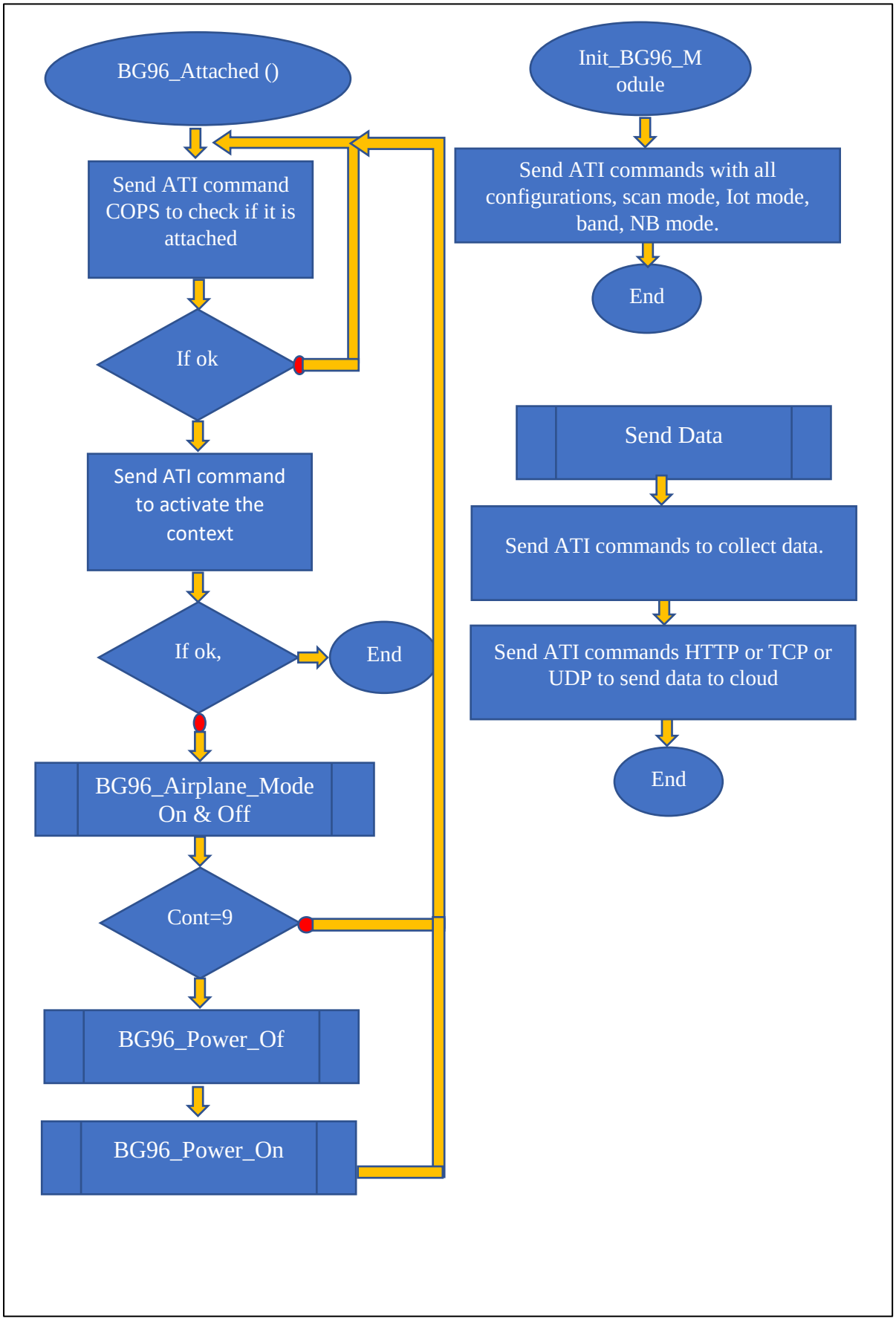

Diagram 2: BG96_Init_Module, BG96_Attached and Send Data subroutine.

4. Reference

[1] https://os.mbed.com/platforms/ST-Nucleo-L073RZ/

[2] https://os.mbed.com/platforms/ST-Nucleo-L476RG/

[3] https://os.mbed.com/teams/Avnet-Silica/code/Nucleo_NbIotBG96_A2_cloud_IBM/wiki/ClientExample