

Implementing NB-IoT: Communication with a Load Cell

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Abstract

The purpose of this project is to establish a line of communication between a loading cell and the internet. This will be done through the NB-IoT technology, and the data being sent is the one being produced by the loading cell. Using a development board from PyCom and a SIM-card from Telia as the network service provider, [...]

Contents

1	Introduction	1
1.1	Purpose and Goals	1
1.2	Delimitations	1
2	Background	3
2.1	Components	3
3	Methodology	5
4	Results	7
5	Discussion	9
6	Threats to Validity	11
7	Conclusions & Future Work	13
7.1	Future Work	13

Chapter 1

Introduction

Vetek is a Swedish scale supplier located in Vaddö, situated approx. 100 kilometers north of Stockholm. Vetek constructs their own scales and weighing systems, as well as reselling products from other manufacturers. Vetek aims to improve their services, and as such are interested in the possible use cases IoT (Internet of Things) technology that could be combined with their products. IoT refers simply to connecting a device to the internet[2], and would in this case refer to a load cell. NB-IoT (Narrowband-IoT), a new and emerging radio technology, encapsulates some principles suitable for this type of endeavor, such as increased coverage, low power consumption and reduced complexity.[1]

1.1 Purpose and Goals

NB-IoT is a relatively new technology, and as such, implementations and documentations remain sparse. With this in mind, even a small project such as this will serve as a guiding post for future work. The goal of this project is to establish a working internet connection with a load cell, and

The end-goal can be divided into two sub-goals.

- Enable internet communication from the micro-controller.
- Enable data transfer from the load cell to the micro-controller.

1.2 Delimitations

The final implementation will not be a fully functional product ready to be used. Any extra functionality and improvements upon a internet-enabled load cell will only be done if time remains after the implementation and the completion of the thesis.

Chapter 2

Background

2.1 Components

Chapter 3

Methodology

Chapter 4

Results

Chapter 5

Discussion

Chapter 6

Threats to Validity

Chapter 7

Conclusions & Future Work

7.1 Future Work

Bibliography

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- [2] Steve Ranger. What is the iot? everything you need to know about the internet of things right now, 2018. URL <https://www.zdnet.com/article/what-is-the-internet-of-things-everything-you-need-to-know-about-the-iot-right-now/>.