Implementing NB-IoT: Communication with a Loading 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, [...]

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Chapter 1

Introduction

Vetek is a Swedish scale supplier located in Väddö, 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 implies refers simply to connecting a device to the internet[2], and would in this case refer to a scale, or more precisely, 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

The goal of this project is to establish a working internet connection with a load cell. The data sent from the load cell should be functionally identical to the data produced if the load cell was offline. Disregarding problems due to the service provider, data speeds and losses should not be abnormal. Using the components previously mentioned

1.2 Delimitations

The final implementation will not be a fully functional product ready to be used. Any extra functionality and improvements upon

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2.1 Components

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Bibliography

[1] Luca Feltrin, Galini Tsoukaneri, Massimo Condoluci, Chiara Buratti, Toktam Mahmoodi, Mischa Dohler, and Roberto Verdone. Narrowband iot: A survey on downlink and uplink perspectives. *IEEE Wireless Communications*, 26(1):78–86, 2019. doi: 10.1109/MWC.2019.1800020.

[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/`.