University of Zurich[UZH]

MASTER THESIS – Communication Systems Group, Prof. Dr. Burkhard Stiller

Design and Prototypical Implementation of ...

Silas Weber
Zurich, Switzerland
Student ID: 14-704-845

Supervisor: Eryk Schiller
Date of Submission: February 3, 2019

University of Zurich
Department of Informatics (IFI)
Binzmühlestrasse 14, CH-8050 Zürich, Switzerland

ifi

Master Thesis
Communication Systems Group (CSG)
Department of Informatics (IFI)
University of Zurich
Binzmühlestrasse 14, CH-8050 Zürich, Switzerland
URL: http://www.csg.uzh.ch/

Abstract

Das ist die Kurzfassung...

Acknowledgments

Optional

Contents

Chapter 1

Introduction

1.1 Motivation

1.2 Description of Work

1.3 Thesis Outline

Chapter 2

Related Work

2.1 Lora

history, usage iot, smart cities, long range, semtech the things network keys & gateways

2.1.1 LoRa signal

chirps, spreading factors, modulation

2.1.2 LoRa in SDRs

josh blum matt knight pieter robyns

2.2 C-RAN in LTE

advantages graphics

Chapter 3

C-RAN for LoRa

3.1 Goal

3.2 Methods

3.2.1 Sending uplink signals

3.2.2 Sending downlink signals

getting a downlink signal recording from thethingsnetwrok recording from private networks manipualting private gateway offline generation of downlink signal see chapter

3.2.3 Transmission protocol

3.3 Architecture

3.3.1 BBU

3.3.2 RRH

3.3.3 Network

3.4 Implementation

3.5 Results

Chapter 4

Future work

4.1 Limitations

4.2 Improvements

Chapter 5

Summary and Conclusions

Bibliography

[1] "Arduino-based library for dragino lora shield v1.4 https://github.com/arduino-org/arduinolibrary-lora-node-shield, last visit."

[2] M. Coates, A. Hero, R. Nowak, and B. Yu, "Internet tomography," May 2002. `http://www.qqq.com`, 15.12.2019.

[3] M. Abramowitz and I. A. Stegun, *Handbook of Mathematical Functions with Formulas, Graphs, and Mathematical Tables*. Dover, ninth dover printing, tenth gpo printing ed.

Abbreviations

AAA	Authentication, Authorization, and Accounting

Glossary

Authentication

Authorization Authorization is the decision whether an entity is allowed to perform a particular action or not, e.g. whether a user is allowed to attach to a network or not.

Accounting

List of Figures

List of Tables

Appendix A

Installation Guidelines

Appendix B

Contents of the CD