**ENSE 483 Project System Design Document**

October 28, 2019

Daniel Shevtsov (SID: 200351253)

[1. Introduction 1](#_Toc22908401)

[1.1 Purpose of the system 1](#_Toc22908402)

[1.2 Design goals 1](#_Toc22908403)

[1.3 Definitions, acronyms, and abbreviations 1](#_Toc22908404)

[1.4 References 1](#_Toc22908405)

[1.5 Overview 2](#_Toc22908406)

[2. Architectures of similar systems 2](#_Toc22908407)

[3. Proposed software architecture 2](#_Toc22908408)

[3.1 Overview 2](#_Toc22908409)

[3.2 Subsystem decomposition 2](#_Toc22908410)

[3.3 Hardware/software mapping 2](#_Toc22908411)

[3.4 Persistent data management 2](#_Toc22908412)

[3.5 Access control and security 2](#_Toc22908413)

[3.6 Global software control 2](#_Toc22908414)

[3.7 Boundary conditions 2](#_Toc22908415)

[4. Subsystem services 2](#_Toc22908416)

[5. Packages 2](#_Toc22908417)

[6. Class interfaces 2](#_Toc22908418)

# Introduction

## Purpose of the system

This system implements *Meat UC5.1: Pig Farm Management* as specified in the *Internet of Food & Farm 2020 Use Case Architectures and Overview of the Related IoT Systems*. This system automates management of pig farms using sensors that report various parameters of each pig’s health to supply decision makers such as farmers, slaughterhouse workers, and experts with relevant and actionable information.

## Design goals

## Definitions, acronyms, and abbreviations

## References

* Krishna, K. L., Silver, O., Malende, W. F., & Anuradha, K. (2017). Internet of Things application for implementation of smart agriculture system. 2017 International Conference on I-SMAC (IoT in Social, Mobile, Analytics and Cloud) (I-SMAC), 54– 59. Retrieved September 28, 2019, from <https://ieeexplore.ieee.org/document/8058236>.
* Nobrega, L., Tavares, A., Cardoso, A., & Goncalves, P. (2018). Animal monitoring based on IoT technologies. 2018 IoT Vertical and Topical Summit on Agriculture - Tuscany (IOT Tuscany), 1–5. Retrieved September 28, 2019, from <https://ieeexplore.ieee.org/document/8373045>.
* Pan, L., Xu, M., Xi, L., & Hao, Y. (2016). Research of livestock farming IoT system based on RESTful web services. 2016 5th International Conference on Computer Science and Network Technology (ICCSNT), 113–116. Retrieved September 28, 2019, from <https://ieeexplore.ieee.org/document/8070130>.
* Sanghavi, J., Shah, A., Rane, S., Shah, N., Nayak, S., Kadam, P., & J., D. (2018). Agricultural Productivity Enhancement System & Livestock Management using Internet of Things. 2018 Second International Conference on Advances in Electronics, Computers and Communications (ICAECC), 1–5. Retrieved September 28, 2019, from <https://ieeexplore.ieee.org/document/8479463>.
* Sun, H., Zhu, Q., Ren, J., Barclay, D., & Thomson, W. (2017). Combining Image Analysis and Smart Data Mining for Precision Agriculture in Livestock Farming. 2017 IEEE International Conference on Internet of Things (IThings) and IEEE Green Computing and Communications (GreenCom) and IEEE Cyber, Physical and Social Computing (CPSCom) and IEEE Smart Data (SmartData), 1065–1069. Retrieved September 28, 2019, from <https://ieeexplore.ieee.org/document/8276884>.

## Overview

# Architectures of similar systems

# Proposed software architecture

## Overview

## Subsystem decomposition

## Hardware/software mapping

## Persistent data management

## Access control and security

## Global software control

## Boundary conditions

# Subsystem services

# Packages

# Class interfaces