

# AGGREGATION OF SEMANTIC SENSOR DATA

Graduation proposal

by

Ivo de Liefde

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## ACRONYMS

SWE	sensor web enablement	3
SSW	semantic sensor web	3
SSN	semantic sensor network	3
W <sub>3</sub> C	world wide web consortium	3
OGC	open geospatial consortium	3



# 1 | INTRODUCTION

This document should include:

- motivation / problem field /relevance
- position in the academic and professional debate
- problem statement, objectives, research questions
- approach, theoretical framework, methodology
- references
- preliminary project set up and results

an introduction in which the relevance of the project and its place in the context of geomatics is described, along with a clearly-defined problem statement

problem statement [Wang et al. \(2015b\)](#), [Corcho and Garcia-Castro \(2010\)](#), [Ji et al. \(2014\)](#), [Huang and Javed \(2008\)](#)

Sensor data discovery [Janowicz et al. \(2013\)](#)

Sensor data fusion [Wang et al. \(2015a\)](#)





## 2 | RELATED WORK

a related work section in which the relevant literature is presented and linked to the project;

### 2.1 SENSOR WEB

open geospatial consortium (OGC) sensor web enablement (SWE) standards [Botts et al. \(2007\)](#), [Botts et al. \(2008\)](#)

Different data formats: XML (SWE), EXI (W3C) and JSON (SensorThings API) [Zanella et al. \(2014\)](#)

Sensor data discovery [Goncalves \(2014\)](#) and visualisation [Yoo \(2014\)](#)

### 2.2 LINKED DATA

Linked Data [Berners-Lee et al. \(2001\)](#)

OSM as Linked Data [Auer et al. \(2009\)](#)

Publishing geodata as RDF [Missier \(2015\)](#)

### 2.3 SEMANTIC SENSOR WEB

semantic sensor web (SSW) [Sheth et al. \(2008\)](#), [De Mel et al. \(2011\)](#), [Bakillah et al. \(2013\)](#)

world wide web consortium (W3C) semantic sensor network (SSN) ontology [Compton et al. \(2012\)](#)

Three layer model

Adding semantics to SOS [Henson et al. \(2009\)](#)

Extending RDF with the ability to represent spatial and temporal data [Koubarakis and Kyzirakos \(2010\)](#)

Research on connecting smart devices to SSW [de Vera et al. \(2014\)](#)

### 2.4 INTERNET OF THINGS

More and more devices connected to the internet. Also a growing amount of research on using sensors of smart devices. [Waher \(2015\)](#), [Calbimonte et al. \(2011\)](#), [Žarko et al. \(2015\)](#)

OpenIoT platform [Calbimonte et al. \(2014\)](#)

## 2.5 SMART CITIES

The role of sensors in smart cities [Zanella et al. \(2014\)](#)

The role of [OGC](#) standards in smart cities [Percivall \(2015\)](#)

# 3 | RESEARCH OBJECTIVES

the research objectives and/or research questions are clearly defined, along with the scope (ie what you will not be doing);



# 4 | METHODS

overview of the methodology to be used;



# 5 | PLANNING

time planning—having a Gantt chart is probably a better idea than just a list;





## 6 | TOOLS AND DATA

since specific data and tools have to be used, it's good to present these concretely, so that the mentors know that you have a grasp of all aspects of the project;



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## COLOPHON

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