|  |  |  |
| --- | --- | --- |
|  |  |  |
|  | |  |  | | --- | --- | | |  | | --- | | **ESCUELA POLITÉCNICA SUPERIOR DE MONDRAGON UNIBERTSITATEA**  *MONDRAGON UNIBERTSITATEKO GOI ESKOLA POLITEKNIKOA*  MONDRAGON UNIVERSITY FACULTY OF ENGINEERING | | |  |
|  | **Partial release of the project** |  |
|  | **GRADO EN INGENIERÍA EN INFORMÁTICA** *INFORMATIKAKO INGENIARITZA GRADUA* DEGREE IN COMPUTER ENGINEERING |  |
|  |  |  |
|  | |  | | --- | | **Título del Trabajo** *Lanaren izenburua* Project Topic | | RUNTIME VERIFICATION FOR SPATIO-TEMPORAL PROPERTIES (WITH AGGREGATED OPERATORS) | |  |
|  |  |  |
|  |  |  |
|  | |  |  | | --- | --- | | **Autor** *Egilea* Author   **Curso** *Ikasturtea* Year | OIHANA GARCIA ANACABE   2021/2022 | | |

**Nombre y apellidos del autor**   
*Egilearen izen-abizenak*   
Author's name and surnames   
GARCIA ANACABE, OIHANA   
  
**Nombre y apellidos del/los director/es del trabajo**   
*Zuzendariaren/zuzendarien izen-abizenak*   
Project director's name and surnames   
EZIO BARTOCCI   
ILLARRAMENDI, MIREN   
  
**Lugar donde se realiza el trabajo**   
*Lana egin deneko lekua*   
Company where the project is being developed   
TU WIEN   
  
**Curso académico**   
*Ikasturtea*   
Academic year   
2021/2022

Table of contents

[1. Description 2](#_Toc93562736)

[1.1. Objectives 2](#_Toc93562737)

[1.2. Project phases 2](#_Toc93562738)

[2. Competences 3](#_Toc93562739)

[3. Objectives 3](#_Toc93562740)

[4. Product specifications and requirements 3](#_Toc93562741)

[4.1. Description of the service 3](#_Toc93562742)

[4.2. Resources and materials 3](#_Toc93562743)

[4.2.1. Hardware 3](#_Toc93562744)

[4.2.2. Software 3](#_Toc93562745)

[4.3. Tests and trials 3](#_Toc93562746)

[4.4. Conditions for the implementation of the project 3](#_Toc93562747)

[4.5. Legal aspects 4](#_Toc93562748)

[5. Project information 4](#_Toc93562749)

[5.1. Work carried out 4](#_Toc93562750)

[5.2. Department 4](#_Toc93562751)

[6. Evaluation of the tasks carried out 4](#_Toc93562752)

[7. Problems and solutions 4](#_Toc93562753)

[8. Conclusions 4](#_Toc93562754)

[9. Future developments of the project 4](#_Toc93562755)

[10. Contributions of the traineeships to studies 4](#_Toc93562756)

[11. Evaluation and suggestions of the traineeship 4](#_Toc93562757)

[12. Proiektuaren zuzendariaren izenpea eta Tutorearen Oniritzia 4](#_Toc93562758)

[13. Data 4](#_Toc93562759)

[14. Office use case 4](#_Toc93562760)

# Description

This is a bachelor thesis about the monitoring of spatio-temporal properties using logic-based specification languages. (…)

#### Cyber Physical Systems

In our live, we are surrounded by CPSs and SoCPSs due to an increasing number of intelligent systems that involve safety, life and business-critical requirements in domains such as transportation, healthcare or home equipment.

#### Runtime Verification

Monitoring information related to the internal status of the CPSs at runtime can anticipate the occurrence of failures. This makes it possible to take corrective actions earlier and prevent faulty scenarios.

## Objectives

Dfsdf

## Project phases

#### Spatio-temporal properties

STREL…

# Competences

Competences to be acquired in the Bachelor's Degree Final Project:

|  |  |
| --- | --- |
| Code | Description |
| G3I406 | *Ariketa original bat indibidualki egitea eta unibertsitateko epaimahai baten aurrean aurkeztu eta defendatzea; ariketa Ingeniaritza Informatikoaren arloko proiektu bat izango da, izaera profesionalekoa, eta bertan ikasketetan barneratutako konpetentziak sintetizatu eta integratuko dira.* |
| Individually carry out an original exercise and present and defend it in front of a university examining board; the exercise will consist of a computer engineering project of a professional nature in which the competences included in the studies will be synthesised and integrated. |
| T1IT04 | *Gaitasuna sistema, zerbitzu edo aplikazio informatikoak garatu eta exekutatzeko hardware eta software plataformak definitzeko, ebaluatzeko eta aukeratzeko.* |
| Ability to define, evaluate and select hardware and software platforms for the development and implementation of computer systems, services or applications. |
| T1IT06 | *Gaitasuna hardwarea, softwarea eta sareak integratzen dituzten sistema edo arkitektura informatiko zentralizatu edo banatuak sortzeko eta garatzeko.* |
| Ability to create and develop centralised or distributed computer systems or architectures integrating hardware, software and networks. |

# Objectives

# Product specifications and requirements

The scope of the work is monitoring spatio-temporal properties using logic-based specification languages. Goal of the student work is to evaluate existing technologies for Runtime Verification of Spatio-Temporal properties over smart cities such as SaSTL. Further, to identify best practices and implement a demonstration methodology based on one of the use-cases defined in the project. Lastly, the method will be tested in order to establish a grade of improvement compared to earlier and state-of-the-art techniques. Writing a technical report on the work performed and the achieved results.

## Description of the service

## Resources and materials

### Hardware

sdfghj

### Software

sdfgh

## Tests and trials

## Conditions for the implementation of the project

## Legal aspects

General Data Protection Regulation (GDPR):

# Project information

## Work carried out

## Department

# Evaluation of the tasks carried out

# Problems and solutions

# Conclusions

(10-15 lerro)

# Future developments of the project

# Contributions of the traineeships to studies

# Evaluation and suggestions of the traineeship

# Proiektuaren zuzendariaren izenpea eta Tutorearen Oniritzia

# Data

# Office use case