**Smart GreenHouse**

**GORGONZOLA**

*10th May 2022*

***Important Notes:***

* ***The descriptions in italics in this document (except for some section headings) are exemplary and explanatory and must be removed from the completed report.***
* ***Identify which section of this report was created by which team member***
* ***Your documentation should have ca. 8 pages.***

# Team members

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# Introduction

# Like many other smart systems, the management in agriculture can also be enhanced through implementing distributed system with IoT and WSN(Wireless Sensor Network) techniques. Particularly, WSN, a network of decentralized sensor nodes which forward collected data to a central location via wireless connection, enables the users to monitor environmental conditions of the system and to act upon it remotely.

# Our smart agriculture model employs distributed system in which microprocessors and sensors are communicating through WSN techniques. To be more specific, our smart agriculture specifies the environmental constraints to greenhouse where we can manage our crop by handling data from temperature sensors and light sensors. The central communication units, RaspberryPi model in our case, will function as a server where sensors and Arduino Uno work as clients. This will faciliate a bi-directional link between the end-users and the physical space. Then the users can control the system either autonomously or dependently to the users by commanding appropriate execution of the actuators.

# Concept description

Diagram

Description automatically generated

*What is the main application for your prototype?*

* Smart Agriculture
* Smart Green House

Initiating with the accumulation of the data via temperature and light sensor with the use of Arduino Uno, the data will be exported to AWS IOT via the RapberryPi’s MQTT. To increase the interactivity with the system, an interface (android app) will be made to control the behavior of the model. In order to visualize the change in the data. The representation will be demonstrated with the QuickSight tool following on with the text push notification on the mobile device. For ease of the process either a data pipeline is intended to be executed or directly a S3 Bucket can be executed. To ensure the possibility of scalability, usage of Lambda function directing the data to be stored in the Dynamo Database.

*Which devices, sensors, actuators, apps etc. are using for your application?*

Arduino

Raspberry Pie

Motor

LED

Sensors:

KY-013 Temperature sensor (NTC)

KY-018 Photo-resisto

# Project/Team management

*Which project methods you used in your project?*

*Breakdown: How you managed your tasks?*

*What are the different tasks/roles of the team members in the project?*

*Describe which team member did which tasks.*

# Technologies

# *Describe the technological approaches you will use to implement your project.*

* *Sensor technologies*
* *Communication protocols*
* *programming languages*
* *...*

# Implementation

*Describe the static structure of the environment.*

*Provide a class diagram for this purpose and briefly explain the classes or modules.*

*Describe the use case(s) of your environment*

# Use Case

*Give instructions on how to use your application. Potentially using an/more example(s), figures, screenshots etc.*

# Sources/References

*Provide the sources on the technologies and algorithms you used in your project (Github).*