

# Capstone Design(1)

## Proposal



**Subjects** : Capstone Design(1)  
**Prof.** : Sang Oh Park  
**Team Name** : TriStar  
**Members** : 20165729 Park SangWoo  
20161344 Heo JeongWoo  
20161090 Lee ChaeMin

## 1. Project Title

Project Title : SDI

"SDI" is a Smart Doorlock Improver,

Inspired by Samsung SDI, We choose the title of this project.

## 2. Introduction & Motivation

Currently, Existing smart door locks only can control doors at home, and sometimes you can't just exchange door lock in a rented room. Also We wish to use them on the front door of multi-storey building that doesn't have Wi-Fi.

So, we will develop some door lock control application and auxiliary devices. If users want to check the door lock, they can use our application to see if the door is closed correctly. If the door is not closed, users can use the application wherever so that the auxiliary device can lock the door directly, even if they don't go directly to the door.



Like 2) IO Switcher, We'll attach auxiliary device to the 1) door lock so it can be used.

### **3. Development & Implementation Contents**

#### **1. Implementation Application**

- This application connects to the auxiliary devices through a repeater or direct.
- Through this, We check the condition of the door lock and design to open and close the door with the application.
- we need to check the user is authenticated because the device can be installed in the common entrance door lock

#### **2. Repeater**

- We make repeater for signal off the door lock.
- We will decide signal transmission by considering power consumption and ease of connection with smartphone among BLE, WiFi, and LPWAN.
- This device is installed even if it is not connected to the Internet, so you have to repeat the signal from the device to the place where the Internet is connected.

#### **3. Auxiliary Devices**

- We make auxiliary Devices using Raspberry Pi or Arduino.
- We experiment with sensors that we need to check whether the door is open or closed.
- the device can open or close the door with your smartphone
- for this, the device must be connected to the internet
- It should be compatible with most existing door locks, so we make this attachable

#### **4. Goal**

1. Compatible with over 95% door locks
2. Minimize program errors

Our goal is to be able to check, open and close door locks anywhere in non-WiFi environment. We create a general auxiliary device that can be used in almost any door lock.

#### **5. Member Roles**

Park SangWoo

- Data collection and survey
- Experiment with sensors
- Implementing Application
- Test

Heo JeongWoo

- Data collection and survey
- Experiment with sensors
- Implementing Repeater
- Test

Lee ChaeMin

- Data collection and survey
- Experiment with sensors
- Implementing Auxiliary Devices
- Test

## 6. Project Schedules

	September				October				November				December		
	9	16	23	30	7	14	21	28	4	11	18	25	2	9	16
Development Contents															
Content Acquisition & Data Survey								Midterm Demonstration and Presentation					Final Demonstration and Presentation		
Experiment with sensors															
Implementing Application															
Implementing Repeater															
Implementing Auxiliary Devices															
Preparing Midterm Demonstration and Presentation															
Test and Debugging															
Preparing Final Demonstration and Presentation															
Writing manuals and reports															

- Park SangWoo's Schedule

	September				October				November				December		
	9	16	23	30	7	14	21	28	4	11	18	25	2	9	16
Development Contents															
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Test and Debugging															
Preparing Final Demonstration and Presentation															
Writing manuals and reports															

# -Heo JeongWoo's Schedule

	September				October				November				December		
Development Contents	9	16	23	30	7	14	21	28	4	11	18	25	2	9	16
Content Acquisition & Data Survey								Midterm Demonstration and Presentation					Final Demonstration and Presentation		
Experiment with sensors															
Implementing Application															
Implementing Repeater															
Implementing Auxiliary Devices															
Preparing Midterm Demonstration and Presentation															
Test and Debugging															
Preparing Final Demonstration and Presentation															
Writing manuals and reports															

# -Lee ChaeMin's Schedule

	September				October				November				December		
Development Contents	9	16	23	30	7	14	21	28	4	11	18	25	2	9	16
Content Acquisition & Data Survey								Midterm Demonstration and Presentation					Final Demonstration and Presentation		
Experiment with sensors															
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