

# CENG 322

## Deliverable 3

Team: The DJKM

Project :The Smart Lock

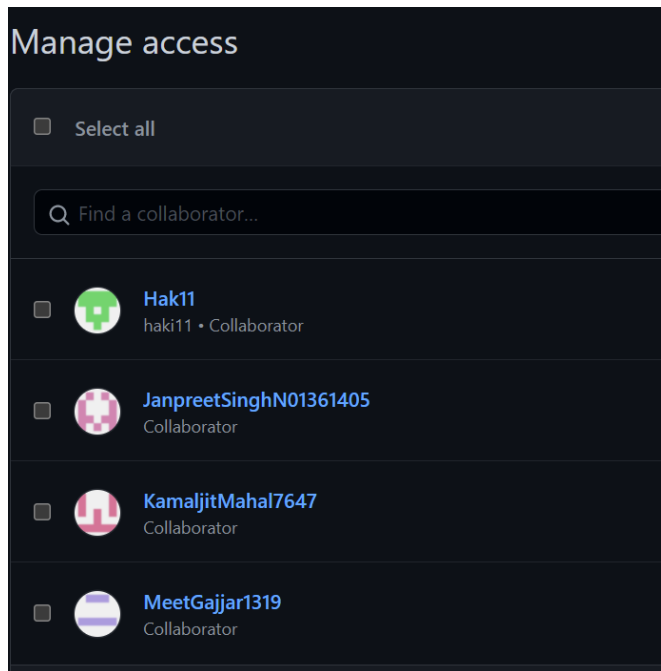
Team Members

- Dillon Permaul N01372657
- Janpreet Singh N01361405
- Kamaljit Mahal N01377647
- Meet Gajjar N01391319

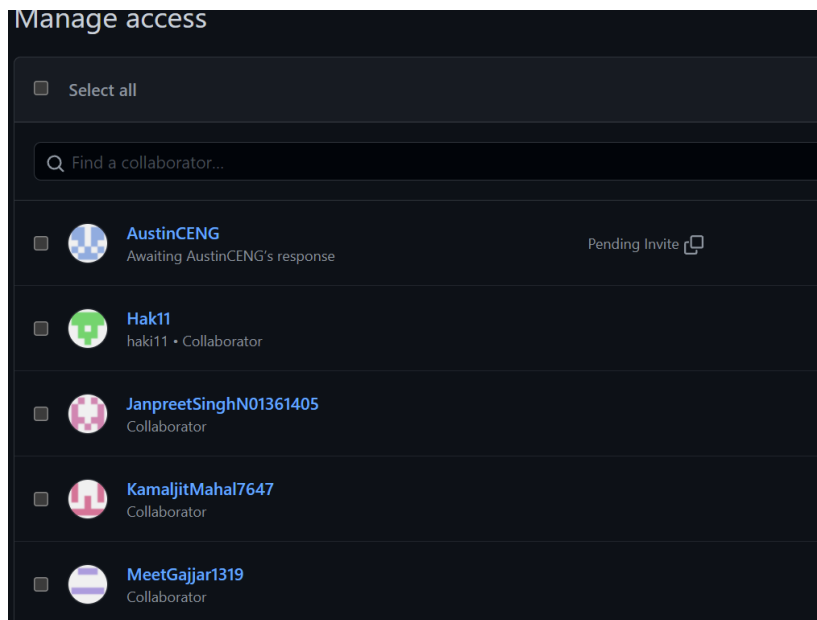
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## Screenshot of github invitation:



## Hardware CENG317 PROF Austin:



## Project Background and Description

The project is a home security smart lock that can be unlocked and locked using a mobile device and a RFID Card. This can be used in people's everyday lives as many people tend to lose their keys or the combinations to locks. This smart lock is very convenient and user friendly as all you need to unlock the lock is either your mobile device or an RFID Card.




App features Include:

- Lock and Unlock the door
- Displays Weather (temperature and humidity)
- Displays time and date
- Set the duration of locked and unlock time (Scheduled Times)
- Track the amount of times door has been locked and unlocked by user
- Detects Motion when a person is near the door

Hardware Used:

- Raspberry Pi 4
- RFID sensor module
- Servo Motor
- Motion Sensor
- Temperature sensor

## **Members Info and Participation**

| Name           | ID        | Signature   | Effort  |
|----------------|-----------|---|---|
| Meet Gajjar    | N01391319 |   | 100%<br>1) Motion screen<br>2) Setting Screen |
| Kamaljit Mahal | N01377647 |   | 100%  |
| Janpreet Singh | N01361405 | J.S   | 100%  |
| Dillon Permaul | N01372657 |  | 100%  |

## **GitHub Repository Link:**

<https://github.com/dillonPermaul2657/TheSmartLock.git>

## Sprint goals:

**Sprint 2:** In order to innovate the door lock we would use a mobile app

**Sprint 3:** Finish basic functionality of app

**Sprint 4:** Complete the app with all functionality

Sprint3:

| ▼ Epic: Finish basic functionality ... | Tasks | Subitems Owner | Person | Status | Size   | Start Date | End Date |
|--|-------|----------------|--------|--------|--------|------------|----------|
| Finish Motion Screen                   | ▶ 5   | MG             | MG     | Done   | Medium | Nov 3      | Nov 15   |
| Validate Database Functionality        | ▶ 6   | DP             | DP     | Done   | large  | Nov 2      | Nov 15   |
| Validate Review Screen                 | ▶ 7   |                |        | Done   | large  | Nov 2      | Nov 15   |
| Complete validations of screens        | ▶ 7   | KM             | KM     | Done   | Medium | Nov 4      | Nov 15   |
| + Add                                  |       |                |        |        |        |            |          |












Nov 2 - 4

Nov 15

Sprint 4:

| ▼ Complete the app with all functionality | Tasks | Subitems O... | Person | Status | Size | Start Date | End |
|---|-------|---------------|--------|--------|------|------------|-----|
| Validate Motion Screen                    | ▼ 5   |               |        |        |      |            |     |

| Subitems                                       | Owner | Status | Start Date | End Date | Size | ⊕ |
|--|-------|--------|------------|----------|------|---|
| Create Realtime Database for motion screen     |       | READY  |            |          |      |   |
| Add textview to send data from the database    |       | READY  |            |          |      |   |
| Modify motion screen for dark mode             |       | READY  |            |          |      |   |
| Create Notification for the on/off button      |       | READY  |            |          |      |   |
| Notify user when motion count is more than 100 |       | READY  |            |          |      |   |
| + Add Subitem                                  |       |        |            |          |      |   |

| Complete the app with all functionality |   | Tasks   | Subitems O...   | Person  | Status        | Size   | Start Date | End Date |
|---|---|---|---|---|---------------|--------|------------|----------|
|   | Validate Motion Screen                          |  ▶ 5   |  |  |               |        |            |          |
|   | Validate Menu                                   |  ▾ 5   | MG  |  | Working on it | large  | Nov 5      | Nov 18   |
| Subitems                                |   | Owner   | Status  | Start Date  | End Date      | Size   | ⊕          |          |
|   | Add Help and about us screen                    |  MG  | Done  | Nov 5   | Nov 7         | Small  |            |          |
|   | Add contents for help and about us screen       |  MG  | Done  | Nov 8   | Nov 11        | Small  |            |          |
|   | add functionality of night mode                 |  MG  | Working on it   | Nov 13  | Nov 17        | Medium |            |          |
|   | add functionality of poratrait/Landscpae mode   |  MG  | Done  | Nov 11  | Nov 13        | Medium |            |          |
|   | add functionality of enable notification switch |   | READY   |   |               |        |            |          |
|   | + Add Subitem                                   |   |   |   |               |        |            |          |



## Breakdown of Tasks

### Meet Gajjar:

| Epic: Finish basic functionality ...   |       |                |        |            |          |            |          |  |
|--|-------|----------------|--------|------------|----------|------------|----------|--|
|  | Tasks | Subitems Owner | Person | Status     | Size     | Start Date | End Date |  |
| Finish Motion Screen                   | 5     | MG             | MG     | Done       | Medium   | Nov 3      | Nov 15   |  |
| Subitems                               |       | Owner          | Status | Start Date | End Date | Size       | +        |  |
| Add ON/OFF Button                      |       | MG             | Done   | Nov 5      | Nov 8    | Small      |          |  |
| Create Toast message for on button     |       | MG             | Done   | Nov 5      | Nov 8    | Small      |          |  |
| Create Toast message for off button    |       | MG             | Done   | Nov 5      | Nov 8    | Small      |          |  |
| Change Background for Motion screen    |       | MG             | Done   | Nov 11     | Nov 13   | Small      |          |  |
| add background image for motion screen |       | MG             | Done   | Nov 11     | Nov 13   | Small      |          |  |
| + Add Subitem                          |       |                |        |            |          |            |          |  |

### Dillon Permaul:

| Epic: Finish basic functionality of app         |       |               |        |            |          |            |          |  |
|---|-------|---------------|--------|------------|----------|------------|----------|--|
|   | Tasks | Subitems O... | Person | Status     | Size     | Start Date | End Date |  |
| Validate Database Functionality                 | 6     | DP            | DP     | Done       | large    | Nov 2      | Nov 15   |  |
| Subitems  |       | Owner         | Status | Start Date | End Date | Size       | +        |  |
| Create Firebase database                        |       | DP            | Done   | Nov 3      | Nov 7    | Large      |          |  |
| Link the Firebase to SmartLock app              |       | DP            | Done   | Nov 4      | Nov 7    | Small      |          |  |
| Set up Functionality for Firebase in app        |       | DP            | Done   | Nov 8      | Nov 14   | Large      |          |  |
| Use review information to Send and receive i... |       | DP            | Done   | Nov 8      | Nov 14   | Large      |          |  |
| Test realtime database                          |       | DP            | Done   | Nov 8      | Nov 14   | Small      |          |  |
| Create push notification using firebase         |       | DP            | Done   | Nov 8      | Nov 14   | Medium     |          |  |

## Kamaljit Mahal:

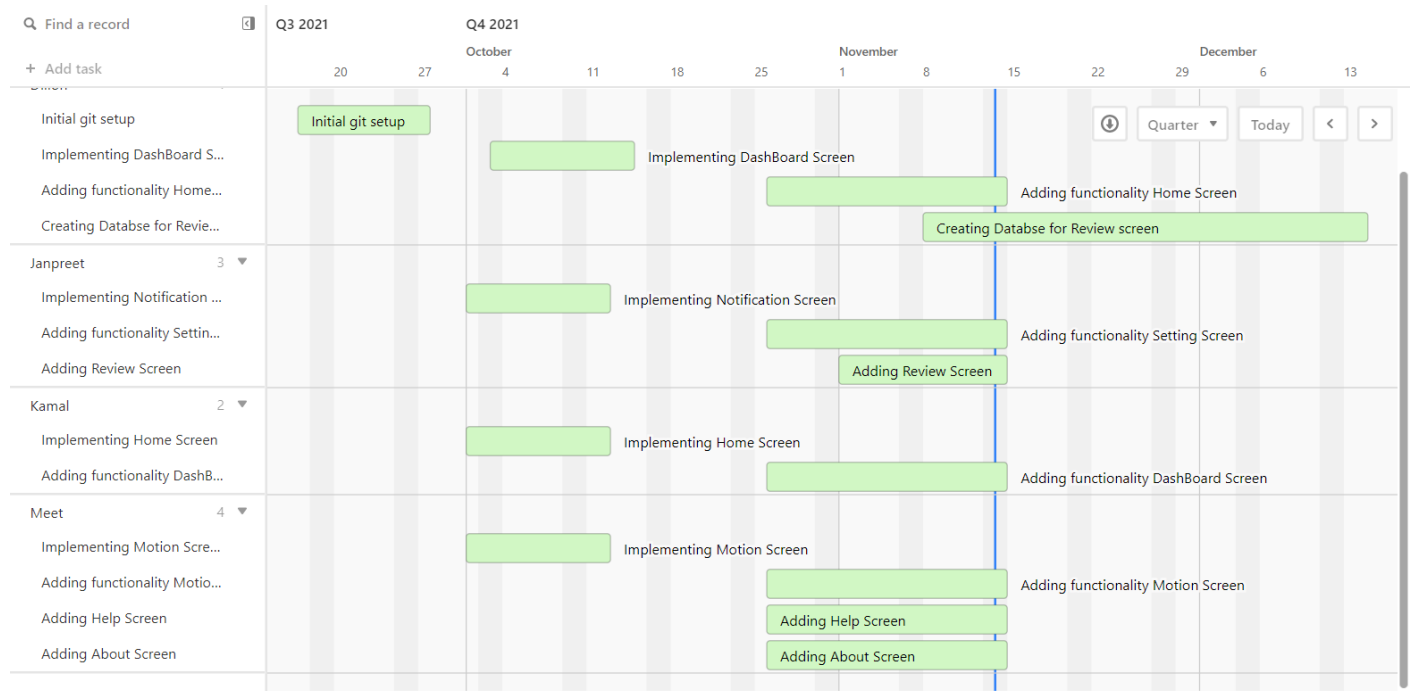
| Complete validations of screens                 |  |       |        |            |          |        |  | 7 | KM | KM | Done | Medium | Nov 4 | Nov 15 |
|---|--|-------|--------|------------|----------|--------|--|---|----|----|------|--------|-------|--------|
| Subitems  |  | Owner | Status | Start Date | End Date | Size   |  |   |    |    |      |        |       |        |
| Complete portrait screen layout                 |  | KM    | Done   | Nov 4      | Nov 14   | Small  |  |   |    |    |      |        |       |        |
| Update runtime permissions                      |  | KM    | Done   | Nov 4      | Nov 14   | Medium |  |   |    |    |      |        |       |        |
| update real time date and time in home screen   |  | KM    | Done   | Nov 5      | Nov 14   | Medium |  |   |    |    |      |        |       |        |
| implement firebase database on review screen    |  | KM    | Done   | Nov 4      | Nov 14   | Large  |  |   |    |    |      |        |       |        |
| Display snackbar on runtime permissions butt... |  | KM    | Done   | Nov 4      | Nov 14   | Medium |  |   |    |    |      |        |       |        |
| Implement temperature box for humidity sens...  |  | KM    | Done   | Nov 11     | Nov 14   | Small  |  |   |    |    |      |        |       |        |
| Fixed the layout for the review screen          |  |       | Done   | Nov 13     | Nov 14   | Small  |  |   |    |    |      |        |       |        |

## Janpreet Singh:

| Epic: Finish basic functionality of app       |  |       |        |            |          |        |  | Tasks | Subitems 0... | Person | Status | Size  | Start Date | End Date |
|---|--|-------|--------|------------|----------|--------|--|-------|---------------|--------|--------|-------|------------|----------|
| Validate Review Screen                        |  |       |        |            |          |        |  | 7     |               |        | Done   | large | Nov 2      | Nov 14   |
| Subitems                                      |  | Owner | Status | Start Date | End Date | Size   |  |       |               |        |        |       |            |          |
| Create new bottom_nav fragment for Review ... |  |       | Done   | Nov 2      | Nov 6    | Medium |  |       |               |        |        |       |            |          |
| Add image for review screen                   |  |       | Done   | Nov 2      | Nov 3    | Small  |  |       |               |        |        |       |            |          |
| add Textview for for name and number          |  |       | Done   | Nov 5      | Nov 8    | Small  |  |       |               |        |        |       |            |          |
| add textview for email and comment            |  |       | Done   | Nov 10     | Nov 13   | Small  |  |       |               |        |        |       |            |          |
| Add a button to submit information            |  |       | Done   | Nov 10     | Nov 13   | Small  |  |       |               |        |        |       |            |          |
| Add interactive stars for review              |  |       | Done   | Nov 6      | Nov 13   | Medium |  |       |               |        |        |       |            |          |
| Create snackbar when submitting               |  |       | Done   | Nov 10     | Nov 13   | Small  |  |       |               |        |        |       |            |          |

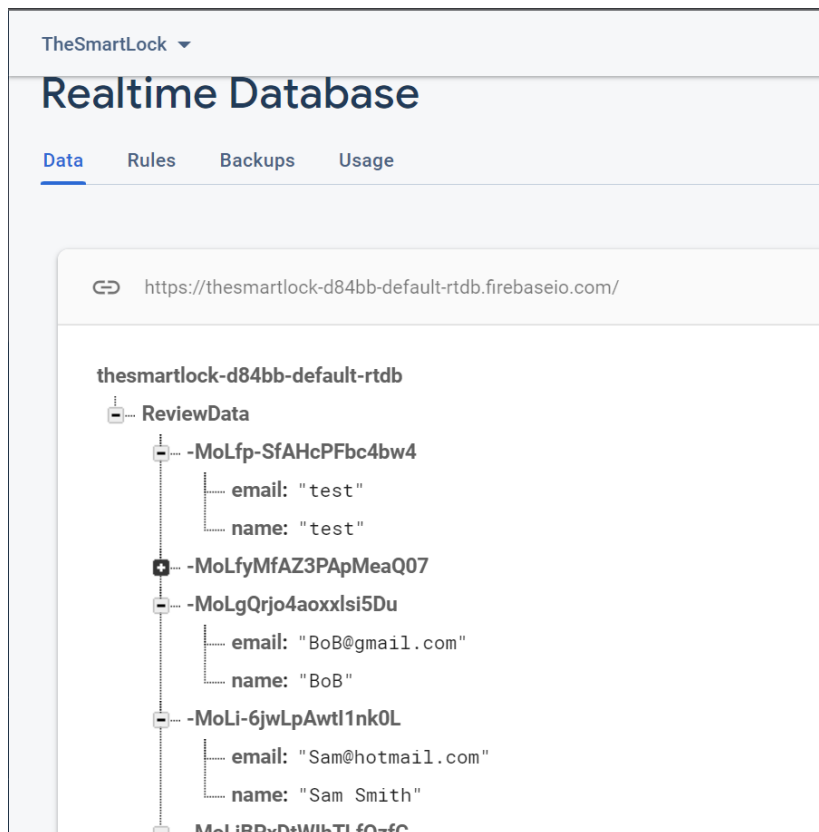
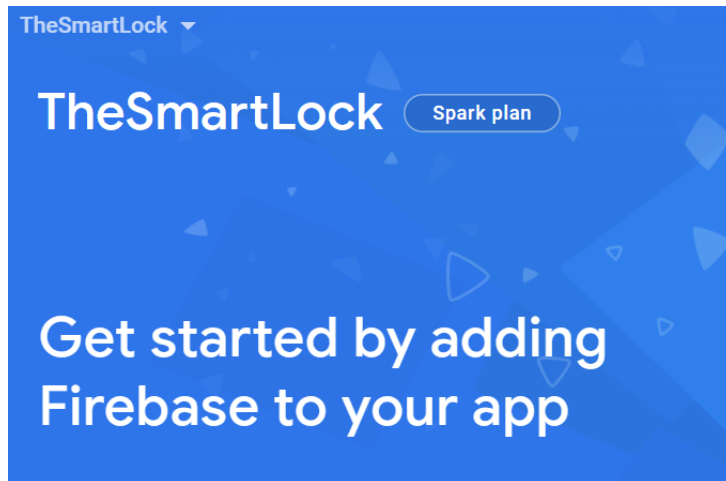
## Gantt Chart

### Tool used: Airtable



|    | Tasks                                 | Status | Assigned | Start Date | End Date   |
|----|---------------------------------------|--------|----------|------------|------------|
| 1  | Topic Selection                       | Done   |          | 9/10/2021  | 9/17/2021  |
| 2  | Initial git setup                     | Done   | Dillon   | 9/17/2021  | 9/27/2021  |
| 3  | Implementing Home Screen              | Done   | Kamal    | 10/1/2021  | 10/12/2021 |
| 4  | Implementing DashBoard Screen         | Done   | Dillon   | 10/3/2021  | 10/14/2021 |
| 5  | Implementing Motion Screen            | Done   | Meet     | 10/1/2021  | 10/12/2021 |
| 6  | Implementing Notification Screen      | Done   | Janpreet | 10/1/2021  | 10/12/2021 |
| 7  | Adding functionality Home Screen      | Done   | Dillon   | 10/26/2021 | 11/14/2021 |
| 8  | Adding functionality DashBoard Screen | Done   | Kamal    | 10/26/2021 | 11/14/2021 |
| 9  | Adding functionality Motion Screen    | Done   | Meet     | 10/26/2021 | 11/14/2021 |
| 10 | Adding functionality Setting Screen   | Done   | Janpreet | 10/26/2021 | 11/14/2021 |
| 11 | Adding Help Screen                    | Done   | Meet     | 10/26/2021 | 11/14/2021 |
| 12 | Adding About Screen                   | Done   | Meet     | 10/26/2021 | 11/14/2021 |
| 13 | Adding Review Screen                  | Done   | Janpreet | 11/1/2021  | 11/14/2021 |
| 14 | Creating Database for Review screen   | Done   | Dillon   | 11/8/2021  | 12/14/2021 |

## Screenshot of Database using Firebase



**A Table records the daily stand-ups outcome**  
**Tool used:** [invisionapp.com](https://invisionapp.com) (Daily Standup Template)

| Daily Standup   |   |   |   |
|---|---|---|---|
| Sprint 3  |   |   |   |
| October 27th 2021   |   |   |   |
| <b>Janpreet Singh</b>   | <b>Dillon Permaul</b>   | <b>Kamaljit Mahal</b>   | <b>Meet Gajjar</b>  |
| <b>What did you work on yesterday?</b><br>Nothing   | <b>What did you work on yesterday?</b><br>Nothing   | <b>What did you work on yesterday?</b><br>Nothing   | <b>What did you work on yesterday?</b><br>Nothing   |
| <b>What will you work on today?</b><br>Discussed that we have ongoing exams this week and due date has been extended. Will start work next week | <b>What will you work on today?</b><br>Discussed that we have ongoing exams this week and due date has been extended. Will start work next week | <b>What will you work on today?</b><br>Discussed that we have ongoing exams this week and due date has been extended. Will start work next week | <b>What will you work on today?</b><br>Discussed that we have ongoing exams this week and due date has been extended. Will start work next week |
| <b>Any blockers?</b><br>No blockers at the moment   | <b>Any blockers?</b><br>No blockers at the moment   | <b>Any blockers?</b><br>No blockers at the moment   | <b>Any blockers?</b><br>No blockers at the moment   |

| Daily Standup  |  |  |  |
|--|--|--|--|
| Sprint 3   |  |  |  |
| November 1st 2021  |  |  |  |
| <b>Janpreet Singh</b>  | <b>Dillon Permaul</b>  | <b>Kamaljit Mahal</b>  | <b>Meet Gajjar</b>   |
| <b>What did you work on yesterday?</b><br>Nothing  | <b>What did you work on yesterday?</b><br>Nothing  | <b>What did you work on yesterday?</b><br>Nothing  | <b>What did you work on yesterday?</b><br>Nothing  |
| <b>What will you work on today?</b><br>Will discuss what with other members on what needs to be accomplished in sprint 3 | <b>What will you work on today?</b><br>Will discuss what with other members on what needs to be accomplished in sprint 3 | <b>What will you work on today?</b><br>Will discuss what with other members on what needs to be accomplished in sprint 3 | <b>What will you work on today?</b><br>Will discuss what with other members on what needs to be accomplished in sprint 3 |
| <b>Any blockers?</b><br>No blockers at the moment  | <b>Any blockers?</b><br>No blockers at the moment  | <b>Any blockers?</b><br>No blockers at the moment  | <b>Any blockers?</b><br>No blockers at the moment  |

# Daily Standup

Sprint 3

November 2nd 2021

| Janpreet Singh   | Dillon Permaul   | Kamaljit Mahal   | Meet Gajjar  |
|--|--|--|--|
| <b>What did you work on yesterday?</b><br>Discussion with team members | <b>What did you work on yesterday?</b><br>Discussion with team members                                   | <b>What did you work on yesterday?</b><br>Discussion with team members       | <b>What did you work on yesterday?</b><br>Discussion with other team members       |
| <b>What will you work on today?</b><br>Create Customer Review Screen   | <b>What will you work on today?</b><br>Add first name last name as a comment in review screen java file. | <b>What will you work on today?</b><br>Comment what I have completed so far. | <b>What will you work on today?</b><br>Look for tools and websites for Gantt chart |
| <b>Any blockers?</b><br>No blockers at the moment                      | <b>Any blockers?</b><br>No blockers at the moment  | <b>Any blockers?</b><br>No blockers at the moment                            | <b>Any blockers?</b><br>No blockers at the moment                                  |

# Daily Standup

Sprint 3

November 3rd 2021

| Janpreet Singh   | Dillon Permaul  | Kamaljit Mahal   | Meet Gajjar   |
|--|---|--|---|
| <b>What did you work on yesterday?</b><br>Created Customer Review Screen               | <b>What did you work on yesterday?</b><br>Comment in review screen java file                | <b>What did you work on yesterday?</b><br>Comment what I have completed so far.  | <b>What did you work on yesterday?</b><br>Looked for tools and websites for Gantt chart |
| <b>What will you work on today?</b><br>Add rating bar & submit button to review screen | <b>What will you work on today?</b><br>Create deliverable 3 document and share with members | <b>What will you work on today?</b><br>Created a new epic in Monday sprint board | <b>What will you work on today?</b><br>Added stories and tasks to Monday sprint 3 epic  |
| <b>Any blockers?</b><br>No blockers at the moment                                      | <b>Any blockers?</b><br>No blockers at the moment   | <b>Any blockers?</b><br>No blockers at the moment                                | <b>Any blockers?</b><br>No blockers at the moment                                       |

# Daily Standup

Sprint 3

November 9th 2021

## Janpreet Singh

### What did you work on yesterday?

Added rating bar & submit button to review screen

### What will you work on today?

Add textView, editText to get user email and name

### Any blockers?

No blockers at the moment

## Dillon Permaul

### What did you work on yesterday?

Worked on deliverable 3 document

### What will you work on today?

Commented design patterns used in our code

### Any blockers?

No blockers at the moment

## Kamaljit Mahal

### What did you work on yesterday?

Created a new epic in Monday sprint board and added stories

### What will you work on today?

Continue updating Monday sprint board

### Any blockers?

No blockers at the moment

## Meet Gajjar

### What did you work on yesterday?

Added stories and tasks to Monday sprint 3 epic

### What will you work on today?

Start working on Gantt Chart

### Any blockers?

No blockers at the moment

# Daily Standup

Sprint 3

November 10th 2021

## Janpreet Singh

### What did you work on yesterday?

Added textView, editText to get user email and name

### What will you work on today?

Update functionality for review screen

### Any blockers?

No blockers at the moment

## Dillon Permaul

### What did you work on yesterday?

Commented design patterns used in our code

### What will you work on today?

Update Notifications screen

### Any blockers?

No blockers at the moment

## Kamaljit Mahal

### What did you work on yesterday?

Continue updating Monday sprint board

### What will you work on today?

N/A

### Any blockers?

No blockers at the moment

## Meet Gajjar

### What did you work on yesterday?

Started working on Gantt Chart

### What will you work on today?

Updated Settings screen to remove languages option

### Any blockers?

No blockers at the moment

# Daily Standup

Sprint 3

November 11th 2021

## Janpreet Singh

### What did you work on yesterday?

Updated functionality for review screen

### What will you work on today?

Implement snackbar when user clicks submit button for review

### Any blockers?

No blockers at the moment

## Dillon Permaul

### What did you work on yesterday?

Commented design patterns used in our code

### What will you work on today?

Add dependencies and services plugin for Google and Firebase

### Any blockers?

No blockers at the moment

## Kamaljit Mahal

### What did you work on yesterday?

N/A

### What will you work on today?

Look at tools for C4 model of system context diagram

### Any blockers?

No blockers at the moment

## Meet Gajjar

### What did you work on yesterday?

Updated Settings screen to remove languages option

### What will you work on today?

Update setting screen to add functionality for portrait view

### Any blockers?

No blockers at the moment

# Daily Standup

Sprint 3

November 12th 2021

## Janpreet Singh

### What did you work on yesterday?

Implemented snackbar when user clicks submit button for review

### What will you work on today?

Fix Snackbar to view rating

### Any blockers?

No blockers at the moment

## Dillon Permaul

### What did you work on yesterday?

Added dependencies and services plugin for Google and Firebase

### What will you work on today?

Creating database on Firebase and making it functional in our app by saving reviews from users

### Any blockers?

No blockers at the moment

## Kamaljit Mahal

### What did you work on yesterday?

Looked at tools for C4 model of system context diagram

### What will you work on today?

Continue working on C4 model

### Any blockers?

No blockers at the moment

## Meet Gajjar

### What did you work on yesterday?

Updated setting screen to add functionality for portrait view

### What will you work on today?

Continue working on Gantt chart

### Any blockers?

No blockers at the moment



# Daily Standup

Sprint 3

November 13th 2021

## Janpreet Singh

### What did you work on yesterday?

Fix Snackbar to view rating

### What will you work on today?

Add editText for reviews  
phone number

### Any blockers?

No blockers at the moment

## Dillon Permaul

### What did you work on yesterday?

Created database on  
Firebase and making it  
functional in our app

### What will you work on today?

Work on sprint retrospective  
and Daily Standup

### Any blockers?

No blockers at the moment

## Kamaljit Mahal

### What did you work on yesterday?

Continue working on C4  
model

### What will you work on today?

Add textView for  
temperature and humidity on  
homescreen

### Any blockers?

No blockers at the moment

## Meet Gajjar

### What did you work on yesterday?

Continue working on Gantt  
chart

### What will you work on today?

Create About Us and help  
page in Top menu

### Any blockers?

No blockers at the moment

# Sprint Retrospective

**Tool used:** [invisionapp.com](https://invisionapp.com) (Retrospective Template)

## Sprint Retrospective

> TheDJKM SmartLock Project

### Overview

11/13/2021 Sprint Retrospective

#### Participants

Dillon Permaul NO1372657  
Janpreet Singh NO1361405  
Kamaljit Mahal NO1377647  
Meet Gajjar NO1391319

### Meeting Agenda

All team members attended all meetings!

#### Start Doing

Working on  
tasks earlier

Test our app  
for any faults

Have more  
daily standup  
meetings  
when possible

Picking a more  
clear story to  
work on

#### Stop Doing

Finishing work  
at the last  
moment

Rushing the  
assigned task  
for the project

Not enough  
meetings

#### Continue Doing

Continuing  
helping each  
other out  
when needed

Continue good  
communication  
with each  
other

Continue  
completing  
assigned tasks  
on time

# Sprint Retrospective

## Overview

### Participants

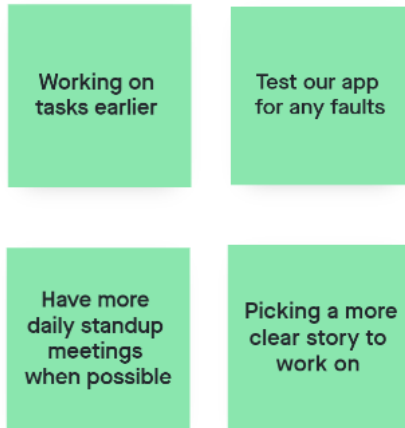
Dillon Permaul NO1372657  
Janpreet Singh NO1361405  
Kamaljit Mahal NO1377647  
Meet Gajjar NO1391319

## Meeting Agenda

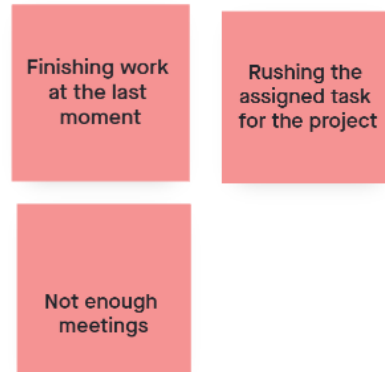
All team members attended all meetings!

### Start Doing

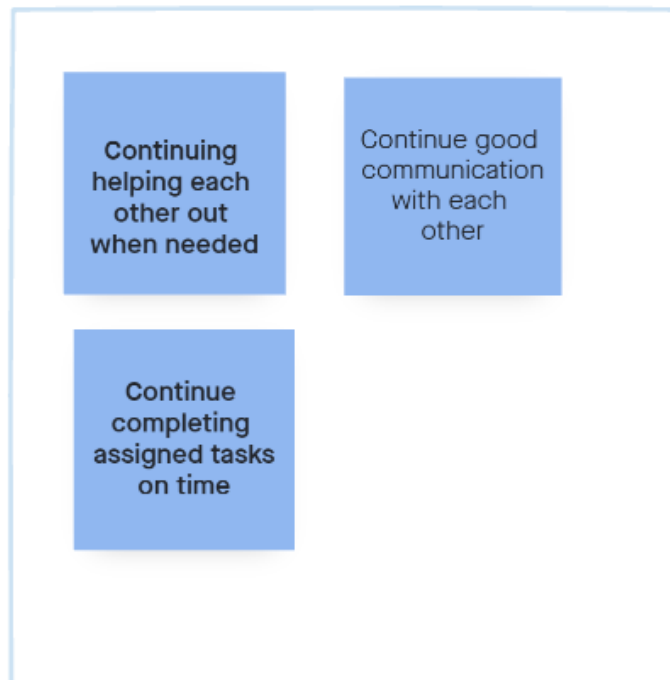
!



### Stop Doing

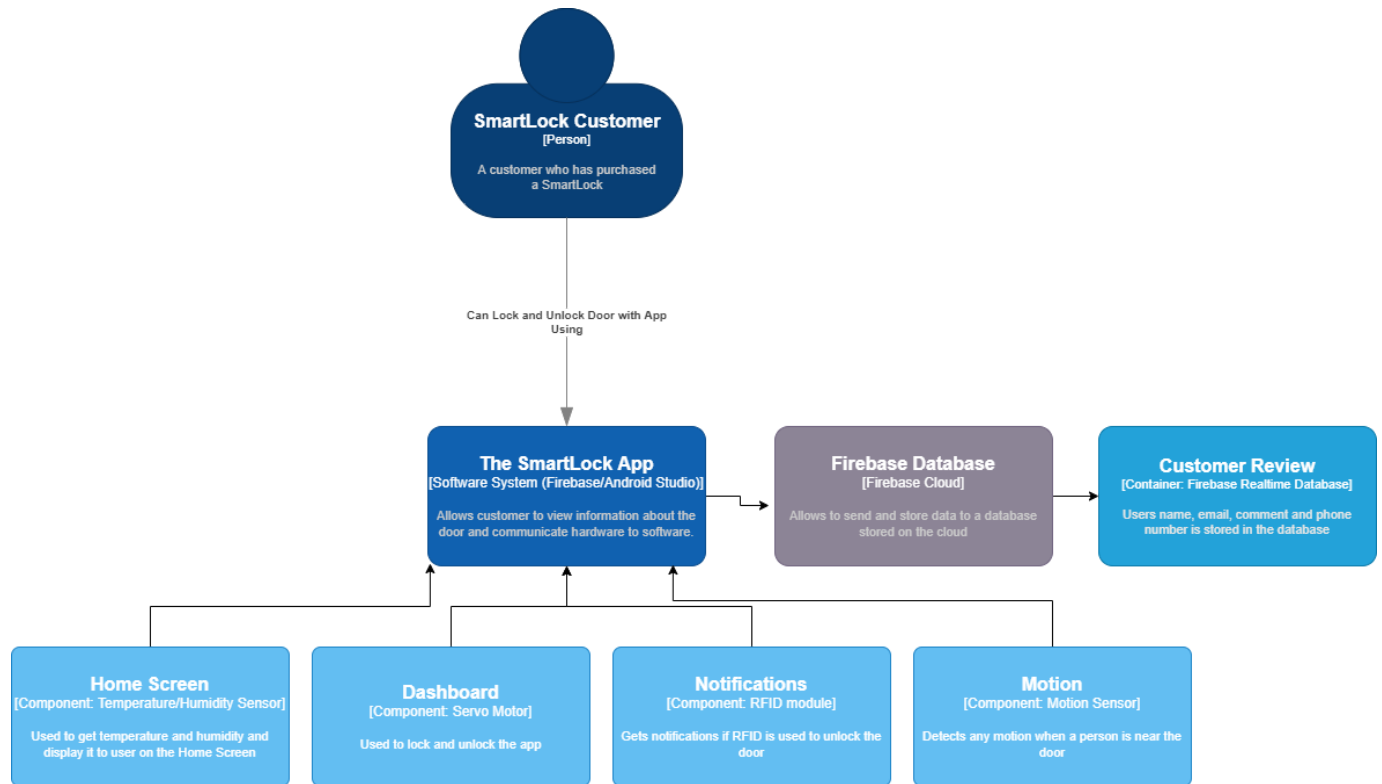


### Continue Doing



## C4 Model of System Context Diagram

**Tool used:** <https://app.diagrams.net/>



### **Coding work progress since deliverable 2:**

- Created customer review screen to bottom navigation with text fields for name, number and comment and a submit button
- Added a rating bar to customer review screen
- Commented two design patterns used
- Updated notification screen
- Added snackbar to review screen
- Updated motion screen to include portrait view
- Create and implement firebase database to send and receive data
- Create push notification using firebase
- Updated runtime permissions to work
- Update real time date and time on home screen

### **Runtime Permissions Implemented:**

In our app we implemented the run time permissions of allowing access to system files.