1. Requirements List
2. Write text portions
3. Interface Description
4. Acceptance criteria
5. Use case diagrams
6. Feasibility
7. Future Items

Remote Lock/Unlock

1. Components involved
   1. The door must unlock by owners phone
   2. The door must lock by owners phone
   3. The door also must unlock and lock with a key
   4. The door must be able to unlock from a long distance through wifi or internet
2. ß If there is no connection to be able to do, give a warning that it doesn’t
   1. Must include safety when the door is unlocked to automatically lock the door
3. after a timer.
   1. Cannot unlock the door by accident
   2. Must send the data of when it’s unlocked to the database
   3. Phone
   4. Door Lock
   5. Wifi
   6. Database
4. Extra thing is this would act like an extra key

External or onboard microcontroller?

1. External = wireless signals received from hardware components (door bell, camera, etc…)
   1. Requirements
   2. Sequence Diagram
   3. Components
      1. Microcontroller must get input from the doorbell
      2. Microcontroller must interact with the wifi
      3. Microcontroller must receive signal from wifi
      4. Microcontroller must keep giving signal until the phone hangs up
      5. Microcontroller must send the video to the database or memory card
      6. The doorbell/microcontroller must be able to give out an output to when the
2. doorbell is clicked to the wifi
   * 1. The wifi must send a signal to the phone
     2. The phone must receive the input from the wifi
     3. The phone has to send out a signal through wifi to the microcontroller if it has
3. accepted or decline the call
   * 1. The Camera must receive the input of the phone
     2. Microcontroller
     3. Router
     4. Phone
4. Internal = on/near door with direct wires running to components

• Microcontroller wire to the video and audio

• Microcontroller to set wiring to the video and audio for power

• Microcontroller has to record the video as well as audio

Power Interface – batteries, power supply, USB, …

How much power?

1. Power needed in microcontroller, camera, audio, wifi
2. Power is needed to the phone
3. Power consumption
4. Power supply
   1. What happens when the phone is dead
   2. How much power will the phone need to take out when this works
   3. The overall power consumption of the system
   4. Plugged into the house in the home?
   5. Battery power
5. ß Will it have to be replaced?
   1. Wired into the house by a switch to turn it on?

What happens when you miss the call or hang up, can they leave a voice message?

1. This is a feature
2. Is it going to send a phone call voicemail?
3. Will it send a notification to the phone, like a message how?
4. Or do nothing if hanged up

Original function of the door and key hole

1. Any modification to the door will not mess up the system
2. Needs to be adaptable

What happens with weather?

a. Lighting Storm

1. This is a feature
2. When power goes out what happens to the system?

b. Rain

1. Requirements
2. Components
   1. We will need to get a telecommunication for the microcontroller
   2. Battery backup doesn’t work
   3. Components that are on the door must be waterproof or water resistance
   4. Camera
   5. Audio
   6. Not sure what else will be on the door\

Position of Camera and Microphone

1. Requirement

Anything happen if they knock on the door?

1. Must not change how some is interacting with the door
2. Should act like the doorbell
3. Does not affect the system if this is not added

Ignore Rings (Call waiting)

1. The system shall activate when the doorbell button is pushed
2. The system shall record video and audio for thirty seconds following activation
3. When active, the system shall deactivate after 30 seconds of inactivity
4. The system shall disregard additional pushes of the doorbell for 30 seconds following activation
5. The system shall ignore additional pushes of the doorbell during an interaction

Homeowner activates camera (when/how/start/stop?)

1. App will have a record button
2. App will have monitor button (live feed without recording)
3. Video feed should start recording when button is pressed (camera will turn on at this time)
4. Video feed will stop recording when button is pressed again (camera will turn off at this time and system will upload video to server)
5. Using record or monitor function will turn on the camera only while the functionality is being used

Peephole Camera (non-intrusive)

1. Installation of the system shall not render the existing peephole useless
2. System functionality shall duplicate the peephole function

Log guests, record video(What happens with no web connection)

1. System will activate when doorbell pushed
2. Take picture
3. Start recording video
4. timestamp
5. Send picture and notification to phone/web apps
6. System will record for 30 seconds after doorbell is pushed
7. Recordings will be saved chronologically on the server
8. Timestamp
9. Shut off upon hang up or after 30 seconds

5. Notification (local (ring), remote (mobile))

1. The mobile system should prompt the user of a call from his door bell for 30 seconds before auto declining.

2. The mobile system should prompt the user of a call from his door bell with a snapshot of the peephole camera.

3. The mobile system call prompt should allow the user to accept a call.

4. The mobile system call prompt should allow the user to decline a call.

6. Type of notification (sound, vibrate, text?)

1. The mobile system should ask the O.S. of its mode and vibrate, sound, or prompt

according to the phones mode.

Notification during phone calls

1. The mobile system should prompt the use during a phone call.

2. The mobile system should allow the user to accept a doorbell call during a phone call.

3. The mobile system should allow the user the decline a doorbell call during a phone call.

7. What happens during accidental unlock?

1. The system should prompt the user for confirmation before unlocking the door.

2. The system should allow the user to lock the door if it is unlocked.

8. Admitting maintenance people

1. Should not be any different from admitting any other person??

2. The mobile system should allow the user to unlock his door during a call.

3. The system should prompt the user for confirmation before unlocking the door.

9. Image Snapshot on Ring

1. The system shall take photo snapshot of guest on doorbell ring.

1a. The system will not take another snapshot for a period of 30 seconds

2. The snapshot will be of a resolution that shall capture unique facial features

2a. The snapshot will be in color

3. The system will store the snapshot locally for a period of 30 days

3a. The system shall transfer local photos to remote storage after the 30 day period

10. External Audio Confirmation

1. The system shall integrate with the current home notification system (standard door bell)

2. The system shall optionally connect to an indoor speaker that will chime upon a user ringing the bell

3. The system will send an audio notification to the user of a guest entering the door space (not necessarily ringing the bell) for a period lasting more than 30 seconds

3a. The system will send an audio notification to the user of a guest who enters and then leaves the door space (postman maybe)

4. The system will send an audio alert to the user after the guest rings the bell

4a. This alert will only sound once every 30 seconds

11. The view of live camera feeds

1. The system shall allow the user to view a live camera feed of their door space

2. The system shall allow the user to record a live camera feed (viewed outside of the normal recording functions - i.e. doorbell ring, motion sensor detection, etc…)

12. Confirmation of Lock/Unlock Operation

1. The system shall provide confirmation of lock operation

1a. The system shall provide notification of lock failure/success

2. The system shall provide confirmation of unlock operation

2a. The system shall provide notification of lock failure/success