All Estimates are made under the following working assumptions for sake of the assignment: 1 control center for the facility and a moderately sized facility (single large building, Kent Library for example).

METHODOLOGY

We adapted the planning poker from the book for use on Discord by using the same methods but posting our numbers at the same time in a specific channel to virtually simulate the simultaneous reveal of the cards with estimates. After we posted our estimates, we discussed everyone's reasoning, and calculated the average of the estimates everyone gave to produce a working, reasonable estimate in case we could not reach a consensus. Once we came to an agreement on how many effort days would be needed for the feature, we divided these days between designing and implementing the feature, ensuring that we took robust testing into account. We then totaled the effort days and broke that total down between design and implementation days. We reached a total of 95 effort days with a breakdown of 37/58 at the end.

Features to Implement

1. System is able to use available 3rd party Open/Close Door Sensors, Open/Close Window Sensors, Window Impact Sensors, Fire Sensors and Smoke Sensors and any other sensors the client wants implemented into the Security System

Effort (Total Days)	Design Days	Implementation Days
8	3	5

2. System uses a suite of sensors to monitor for Security Violations, Security Alarms and Emergency Events. The system monitors these sensors and signals alarms if any of these sensors are tripped.

Effort (Total Days)	Design Days	Implementation Days
5	2	3

3. System is card based, using Employee Card Readers to monitor movement of authorized personnel between Security Zones and entry/exit of the Building. The system logs this data to the system Database.

Effort (Total Days)	Design Days	Implementation Days

5	2	3

4. System uses Employee ID/Security ID to unlock Security Doors using an Employee Card Reader located on the Security Door. This checks the employee(s) Permissions against associated Security Level within the Security Zone. If authorized the Security Door will unlock, if not a Security Violation will trigger.

Effort (Total Days)	Design Days	Implementation Days
5	1	4

5. System gives Security Personnel control of the system via a Control Center(s) using readily available computers, Screens, Keyboard(s) and Mouse(Mice).

Effort (Total Days)	Design Days	Implementation Days
1	0	1

NOTE: Based on 1 control center being implemented into the system

6. Emergency Events are logged automatically in the system, with an option to print the logs in active real time for physical record keeping (Note: this requires a Printer to be in the Control Center(s))

Effort (Total Days)	Design Days	Implementation Days
3	1	2

NOTE: Based on using Windows OS for purposes of printing

7. System monitors Security Patrols through a Checkpoint system using Checkpoint Card Readers, and logs these patrols. In addition the system will alert if an anomaly occurs. These anomalies are based on patrol times, if a check-in is late by a small margin the system will signal a Security Violation. If the check-in is late by a larger margin the system will signal a Security Alarm. The margins for these are adjustable within the system to adapt the system for larger or smaller locations.

Effort (Total Days)	Design Days	Implementation Days

13	5	8

8. The system is Security Zone, Permissions, and Security Level based

Effort (Total Days)	Design Days	Implementation Days
5	2	3

9. The system is able to have Security Zones of varying Security Levels, with Permissions being given to the appropriate personnel. When an unauthorized person(s) attempts to enter a Security Zone that they do not have the necessary Permissions for, this will trigger a Security Violation.

Effort (Total Days)	Design Days	Implementation Days
5	1	4

10. The system has emergency functions to assist in facilitating an Emergency Evacuation or the resolution of an Emergency Event. Emergency Events can occur from a sensor trip such as a Fire Sensor or Smoke Sensor. In addition these can be triggered in the Control Center(s) when an Emergency Event is detected not based on sensors, such as a medical emergency.

Effort (Total Days)	Design Days	Implementation Days
8	3	5

11. During an Emergency Event the system is able to push information to local first responders such as Police, Fire and EMT.

Effort (Total Days)	Design Days	Implementation Days
2	1	1

12. The system is controlled via a simple Interface, located on the Control Center(s) computers.

Effort (Total Days)	Design Days	Implementation Days
13	5	8

13. The system is able to have multiple Control Center(s) to monitor specific Security Zones. Note the number of Control Center(s) should be based on location size, requirements and available resources.

Effort (Total Days)	Design Days	Implementation Days
5	2	3

14. All security data and logs is stored in a secure Database, preferably 1 on site and an off site back up

Effort (Total Days)	Design Days	Implementation Days
5	2	3

15. Security personnel can trigger a lockdown, creating an Enclosing Zone within the Building or relevant Security Zone to assist in the capture of a perpetrator, or contain a Break-in until first responders can arrive. These Enclosing Zones should be able to be expanded, contracted and modified as the situation requires

Effort (Total Days)	Design Days	Implementation Days
8	5	3

16. System has a Master Key that will allow unfettered access within the Building.

Effort (Total Days)	Design Days	Implementation Days
1	0	1

17. Personnel in the Control Center(s) can unlock Door Locks to assist in free movement during an Emergency Event. This is to prevent a time delay in first responders being able to get to the point of friction.

Effort (Total Days)	Design Days	Implementation Days
3	2	1

Notes: ‘system’ is used here within to refer the the specific term from the data dictionary ‘Security System’

Terms from the Data Dictionary are highlighted to assist in continuity of ideas and concepts.

Total Effort	Total Design Days	Implementation Days
95	37 (38.9% of total days)	58 (61.1% of total days)