

# Deliverable 1

## Team Information

**Team Name:** Centurion

**Project Name:** Centurion Home Control System

**Team Members:**

Andres Vargas(N01359071), Ibrahim Abdiaziz(N01394807), Zachary Symons(N01390593),  
Jonathan Alexandris (N01352690)

**Proposal:** Home Security and Control System

**Functionality:**

- Temperature reading
- Humidity
- light control
- door lock control
- RFID functionality for door lock
- Notify user when door has been opened and not closed
- Thermostat

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## Project Background and Description

### Goals & Vision

The goal for this app is to make an all-in-one home security system that incorporates many parts of a home. This security system will be through our app that can control all aspects of our security system from your fingertips.

### Software Aspect and hardware

Light Control - Change light intensity and allows user to turn on and off light as well as set light on timer. LED on PCB will represent light that user is able to control from the app. Proximity Sensor to activate light to deter possible intruders.

Door Lock - toggle door status(OPEN/CLOSE)from the app.The app will show if the door is locked or unlocked. This will also include a RFID sensor to unlock the door, if the wrong RFID is detected it will alert the user in app.

Thermostat Control - reads the temperature, humidity, and air pressure of the environment and displays to the user. Toggles fan on PCB either on or off depending on the current temperature reading.

Carbon dioxide detection (Fire Detection)- A carbon monoxide will be collecting data from the environment and when Carbon dioxide is detected a notification will be sent to the users phone and prompt them to call emergency services.

## Screen Flows

When the user opens the app they are greeted with a login page where they can use their email and password to log in. If they haven't they can create an account they can create one as well.

A menu in the top right will pull out a list of our fragments for each security component.

The Light Control fragment will contain a manual control for the LED light as well as a Timer setting allowing the user to set specific times for the motion sensor to take control of the light.

The lock fragment will contain a lock and unlock button that will control the door lock. The RFID sensor will also alert the app if the tag was correct or incorrect and will affect the lock accordingly.

The Thermostat fragment will contain the current temperature of the room in degrees, as well as the humidity in

The Carbon Monoxide screen will display the current status of the sensor. If conditions are normal the screen will display as such. If the sensor detects abnormal levels of CO2 a WARNING screen will be displayed and the user will be prompted to contact emergency services.

## Feedback

Centurion will take the feedback provided and try our best to incorporate it into our system. If unable we will find a compromise.

## Database

User credentials will be saved and stored on a database for future logins. In addition, events that are triggered through our hardware will be stored in a firebase database as an alert/alarm.

# CENG-322 TEAM PROJECT

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**Project Name: Centurion Home Control System**

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*Please negotiate, sign, scan and include as the first section in your Deliverable 1.*

**Please note that if cheating is discovered in a group assignment each member will be charged with a cheating offense regardless of their involvement in the offense. Each member will receive the appropriate sanction based on their individual academic honesty history.**

**Please ensure that you understand the importance of academic honesty. Each member of the group is responsible to ensure the academic integrity of all of the submitted work, not just their own part. Placing your name on a submission indicates that you take responsibility for its content.**

Team Member Names (Please Print)	Signatures	Student ID
Project Leader: Zachary Symons	<i>Zachary Symons</i>	N01390593
Andres Vargas	<i>Andres Vargas</i>	N01359071
Jonathan Alexandris	<i>Jonathan Alexandris</i>	N01352690
Ibrahim Abdiaziz	<i>Ibrahim Abdiaziz</i>	N01394807

**For further information read Academic Honesty Policy on**  
<https://humber.ca/legal-and-risk-management/policies/search-by-students.html>.

By signing this contract, we acknowledge having read the Humber Academic Honesty Policy as per the link below.

<https://academic-regulations.humber.ca/2018-2019/17.0-ACADEMIC-MISCONDUCT>

Responsibilities of the Project Leader include:

- Assigning tasks to other team members, including self, in a fair and equitable manner.
- Ensuring work is completed with accuracy, completeness and timeliness.
- Planning for task completion to ensure timelines are met
- Any other duties as deemed necessary for project completion

What we will do if . . .

Scenario	Accepted initials	We agree to do the following
Team member does not deliver component on time due to severe illness or extreme personal problem	ZS JA IA AV	a) Team absorbs workload temporarily ____  b) Team seeks advice from professor <u>X</u>  c) Team shifts target date if possible ____  d) Other:
Team member cannot deliver component on time due to lack of ability	ZS JA IA AV	a) Team reassigns component ____  b) Team helps member <u>X</u>  c) Team member must ask professor for reference material ____  d) Other:

Team member does not deliver component on time due to lack of effort	ZS JA IA AV	<p>a) Team absorbs workload <u>X</u></p> <p>b) Team "fires" team member by not permitting his/her name on submission —</p> <p>c) Other:</p>
Team member does not attend team meeting	ZS JA IA AV	<p>a) Team proceeds without him/her and will assign work to the absent member <u>X</u></p> <p>b) Team doesn't proceed and records team member's absence —</p> <p>c) Team proceeds for that meeting but "fires" member after __ occurrences __</p>
An unforeseen constraint occurs after the deliverable has been allocated and scheduled (a surprise test or assignment)	ZS JA IA AV	<p>a) Team meets and reschedules deliverable <u>X</u></p> <p>b) Team will cope with constraint —</p> <p>c) Other:</p>

Team cannot achieve consensus leaving one member feeling "railroaded", "ignored", or "frustrated" with a decision which affects all parties	ZS JA IA AV	<p>a) Team agrees to abide by majority vote <u>X</u></p> <p>b) Team flips coin ____</p> <p>c) Other:</p>
Team members do not share expectations for grade desired	ZS JA IA AV	<p>a) Team will elect one person as "standards-bearer" who has the right to ask that work be redone ____</p> <p>b) Team votes on each submission's quality <u>X</u></p> <p>c) Team will ask for individual marking and will identify sections by author ____</p> <p>d) Other:</p>



Team member behaves in an unprofessional manner by being rude or uncooperative	ZS JA IA AV	<p>a) Team attempts to resolve the issue by airing the problem at team meeting <u>X</u></p> <p>b) Team requests meeting with professor to problem-solve __</p> <p>c) Team ignores behaviour __</p> <p>d) Team agrees to avoid use of all vocabulary inappropriate to the business setting __</p>
Team member assumes or requests that his/her name be signed to a submission but has not participated in production of the deliverable	ZS JA IA AV	<p>a) Team agrees that this is cheating and is unethical <u>X</u></p> <p>b) Friends are friends and should help each other __</p> <p>c) Team will submit with signature but will advise professor who will take action __</p>

There is a dominant team member who is content to make all decisions on the team's behalf leaving some team members feeling like subordinates rather than equal members	ZS JA IA AV	<p>a) Team will actively solicit consensus on all decisions which affect project direction by asking for each member's decision and vote <u>X</u></p> <p>b) Team will express subordination feelings and attempt to resolve issue ____</p> <p>c) Other:</p>
Team has a member who refuses to participate in decision making but complains to others that s/he wasn't consulted	ZS JA IA AV	<p>a) Team forces decision sharing by routinely voting on all issues ____</p> <p>b) Team routinely checks with each other about perceived roles <u>X</u></p> <p>c) Team discusses the matter at team meeting ____</p>

## Project Scope

- 1) Our project's main function is a Home Security and Control System. Users will be able to monitor the temperature, humidity, status of their door lock. They will also be able to open the lock of their door directly from our app, activate the air conditioning to reach a desired temperature, control their lights along with light brightness. Our project will also have safety features which notify users if CO2 levels are abnormal and notify users if it

has been detected that a person has tried to open their locked door multiple times. The user will then be sent a notification using the readings gathered and will be asked if they wish to contact emergency services for assistance in high CO2 levels and/or if they wish to contact emergency services about a suspected break in.

- 2) The App will have monitoring and control aspects. The user will be able to control the air conditioning toggle ON/OFF which will be represented as a fan. Temperature and humidity will be displayed on the screen via the sensor Grove - Temperature & Humidity Sensor V2.0 (DHT20) / Upgraded DHT11/ I2C Port. The app will allow readings of temperature and humidity, with the additional option of turning the fan ON and OFF. The Carbon Monoxide sensor MQ-7.

The app will also have a functionality to have a door lock be locked and unlocked through the app. The app will let the user know if the door is currently locked or unlocked. If the user doesn't have their phone or is unable to use the app, they can use a MFRC522 RFID sensor to unlock the door. If the user uses the rfid to unlock the door, the door will lock again after a certain amount of time specified by the user.

Lastly the system will also feature a Motion/Proximity Sensor that will detect any possible intruders outside the home. When a possible intruder is detected an LED light will turn on and stay on for an amount of time again specified by the user.

## Github Link

- <https://github.com/ZacharySymons-n01390593/Centurion>

## Themes & Epics

