Internship cervello task

(Fire case scenario)

**Description:**

It is required to build a simulation for your Fire management system which is built on cervello and to offer this system to mentors in a presentation to show the system features, the mentors then will decide if the system is worth buying or it needs some modifications.

**System specifications:**

1. System contains smoke detectors which can detect fire and send alarms to panel.
2. Panel connect to cervello platform using MQTT to report which sensor sent the fire alarm.
3. Panel sends error alarms for the panel itself and the sensor.
4. Fire system is supported by public address system to announce the fire alarm.
5. Speakers are connected to speaker’s controller to receive an order to initiate the alarm message.
6. Speaker`s controller send any error happen on speakers or the controller to cervello platform
7. Fire System is supported by access control system.
8. Each door has its own device which controls the door (open, close & read user card).
9. Door device (door sensor) sends event to a controller about who entered with a card and sends an alarm if someone tries to open the door by force.
10. Access controller sends the data to cervello about errors or events or alarms.
11. Access controller send an order to open the doors when alarm fires happened and sends an order to close doors when an alarm is cleared.
12. All connections use MQTT protocol.
13. System contains a main dashboard to show alarms and events (map for a building or floor is a plus)
14. System contains a dashboard for fire system to show alarms and events for fire system.
15. System contains a dashboard for public address system to show alarms and events for public address.
16. System contains a dashboard for Access control system to show alarms and events for Access control and control opening and closing doors manually.
17. Connectivity of controllers are shown in each system in real time.
18. Each system dashboard has a list of devices in that system.

**Alarm Types:**

1. Fire Alarm on smoke detector.
2. Fire sensor trouble.
3. Fire panel disconnected.
4. Fire panel trouble.
5. Speaker trouble.
6. Shortcut on speaker controller.
7. Speaker controller disconnected.
8. Speaker is missing.
9. Access controller trouble.
10. Door sensor trouble.
11. Door forced open.
12. invalid card is used.

**Event Types:**

1. User entered with a card (showing card number and user name).
2. Presentation is running in a room (means that presenter is using speaker).
3. Welcome message is running on speaker.
4. Public announcement is running on speaker.

**Demo Requirement:**

1. A mocking for these systems will be prepared but not showed in the presentation.
2. A Golang console service should be running on one of the laptops to simulate the connectivity of both access controller and public speaker controller and present the messages send from cervello to these controllers, this service should connect to cervello using mqtt.
3. Sending the alarms & events from mqtt service is a plus.
4. Number of devices or assets needed in the demo is mentioned by the mentor.
5. If the intern has more ideas or want to add features discuss it with the mentor.