University of Cagliari

Faculty of Engineering and Architecture

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Room Presence in a Museum

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Reference Scenario :

The way that are art pieces are organized in a Musem influences heavingly the enjoyment and overall procession and evaluation of visiting patrons. Which can also be a detriment to a curator that wishes to prolonge the visitors' stay and engagement.

In this project we provide an IoT solution to monitor the presence of the visitors, track their numbers and the pathways taken by the crowd from one artwork to another. This will aid in tailoring the experience to the users' preference.

This IoT solution is mainly provided to all curators no matter the size of the museum. However, though it is aimed at art museums, it still functions and scales perfectly from small art exhibits to major historical museusms.

Functional Requirements :

- **Presence Monitoring:** The system is able to monitor the presence of a visitors in museum premises.
  - Input: Data from the IoT system on visitor presence.
  - Output: Status of visitors in the museum.
- **Real-time Presence Monitoring:** The system is able to monitor the presence of a visitors in museum premises in Real-time.
  - Input: Continous data from the IoT system on visitor presence.
  - Output: Real-time status of visitors in the museum.
- **Visitor Entry and Exit Detection:** The system is able to detect when visitors enter and exit the museum and track their movements throughout the museum.
  - Input: Entrance and Exit monitoring data from the IoT system.
  - Output: Records of visitor movements.
- **Real-time Visitor Number Monitoring:** The system is able to keep track of the number of visitors present in different rooms and areas of the museum.
  - Input: Data on room occupancy by the IoT system.
  - Output: Records of visitor counts.
- **Visitor Number Monitoring:** The system is able to keep track of the number of visitors present in different rooms and areas of the museum in real-time.
  - Input: Continous data on room occupancy by the IoT system.
  - Output: Real-time visitor count.
- **Crowd Movement And Pathway Monitoring:** The system is able to keep track of the crowd movement and pathways taken from one artwork to another.
  - Input: Sensor data on crowd flow by the IoT system.
  - Output: Analysis of crowd movement and records of visitor routes.

- **Data Logging:** The system is able to collects data and keep logs in order to provide insights to the museum curators to enhance the overall user experience
  - Input: Recorded continous visitor movement data from the IoT system.
  - Output: Logged data for analysis.
- **Real-Time Data Access:** The system is able provide the museum curator with Real-time updated data from the museum IoT sensors
  - Input: Curator login credetials.
  - Output: Real-Time access to museum data and analytics via a suitable user interface.
- **Collected and Logged Data Access:** The system is able provide the museum curator with access to the collected and logged data from the museum IoT sensors
  - Input: Curator login credetials.
  - Output: Access to collected and logged museum data and analytics via a suitable user interface.

Non Functional Requirements :

- The system is scalable to different museum sizes and is able to handle large traffic.
- The system is reliable and accurate and is able to keep track of visitors under different circumstances and in an accurate manner.
- The system is robust, secure and prioritizes the privacy of the visitors and data collected.
- The system is user friendly and is able to be used easily by curators to gain access to the data collected.