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| Group 3 |
| Applied Research Proposal Document |
| IO-Digital |

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| Group 3  [Date] |

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# Main Research Questions

## What is the best way to prevent over booking of meeting rooms at IO Digital?

## What will we do in response to over booking meeting rooms?

## How will we access the meeting room bookings?

## How will we get the amount of people in the meeting room?

## What will we do about privacy?

# Sub – Research Questions

## Sprint 1

## Sprint 2

* Should we use Java or Python for the Raspberry Pi?
* How does OpenCV Work?
* What Kind of Unique ID should we send, from the camera?
* What Raspberry Pi can handle the AI model and camera?
* How could we assign camera to a room securely and keeping privacy in mind?
* How are we going to communication between Hardware (raspberry pi) and backend?
* What are we going to use for the main backend, Spring Boot?

## Sprint 3

* How can the socket communication between the Raspberry Pi and Main backend, be encrypted?

## Sprint 4

* What security protocols are best suited for communication between Raspberry Pi and backend?
* How can we ensure data privacy for meeting room bookings and usage statistics?
* How will we handle edge cases (e.g., a camera failure or false data) in the AI system?

## Sprint 5

* What testing procedures will we follow to ensure system reliability and privacy compliance?
* How can we scale the system for multiple meeting rooms across different locations?

# End Result

The research aims to demonstrate that a well-designed, integrated meeting room management system can significantly reduce the problem of overbooking and improve the overall user experience. By combining AI-powered camera systems with a robust backend infrastructure, we intend to create an efficient, secure, and privacy-conscious solution for meeting room bookings at IO Digital.

The end result will:

1. **Prevent Overbooking:** By providing real-time insights into meeting room occupancy and availability, the system will ensure that meeting rooms are not overbooked, leading to better space utilization.
2. **Enhance Booking Accuracy:** The system will track the number of people in the room, giving more accurate booking data and preventing rooms from being reserved for more attendees than they can accommodate.
3. **Privacy-Focused Solution:** We will ensure that privacy is prioritized by designing the system to store and process only the minimum required data, such as anonymized occupancy information, and by implementing secure communication protocols between hardware and backend systems.
4. **Seamless User Experience:** Through an easy-to-use front-end interface, users will be able to easily check room availability, make reservations, and access relevant information about meeting room capacity and usage.
5. **Scalability and Reliability:** The system will be scalable, capable of handling multiple rooms across different locations, and built to provide consistent and reliable performance even during peak times.
6. **Secure Communication:** The encrypted communication between the Raspberry Pi devices and the backend will ensure that room data is securely transmitted and stored, preventing unauthorized access.