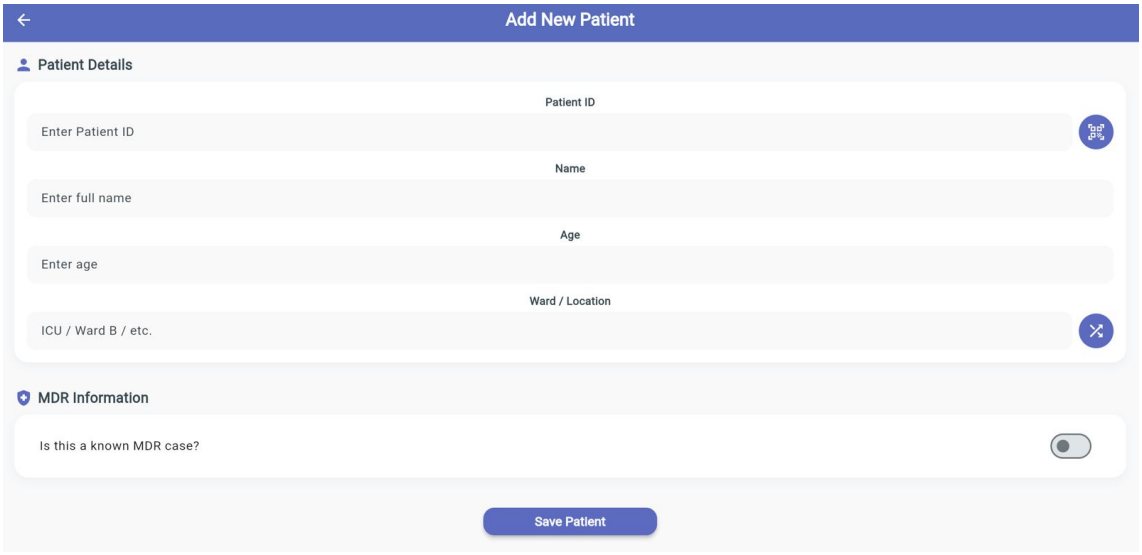
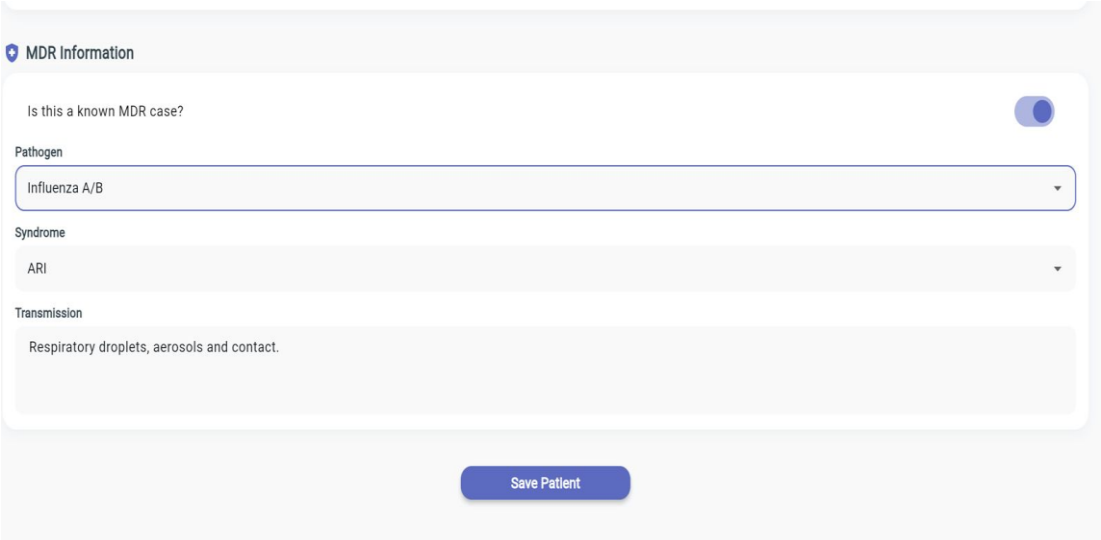
NOVELTY

1. Tracking of movements of MDR patients across wards and the usage of equipments by them through ***QR Code based approach*** recording timestamp details as well.

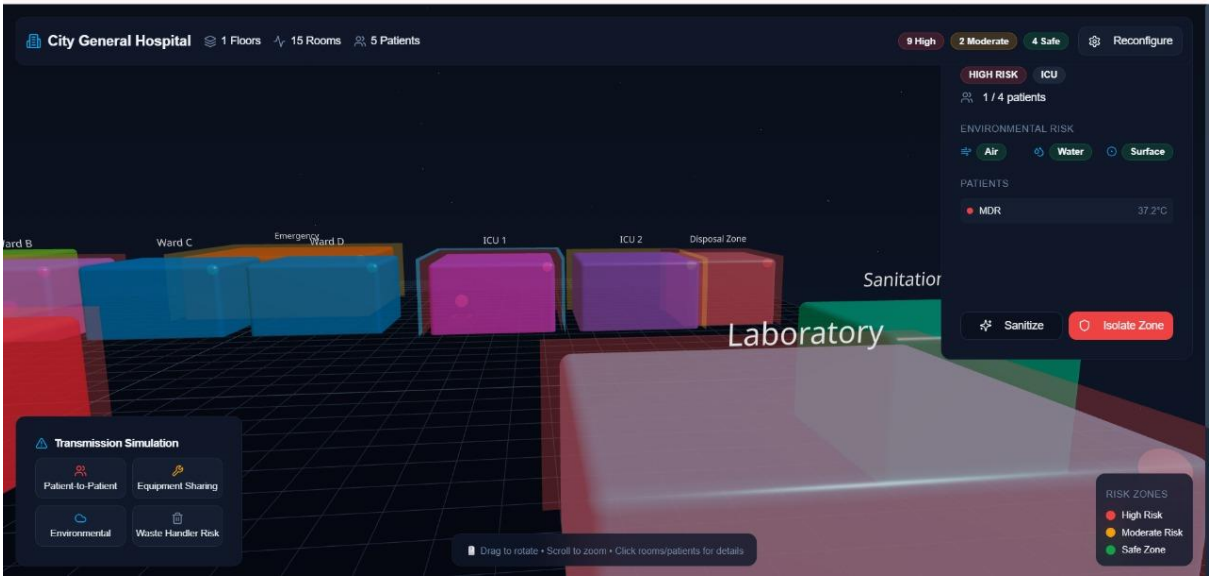


2. The Data and the ML model for predicting the level of MDR Risk are validated based on ***ICMR Guidelines***.

3. If the person is MDR positive, identifying the ***type of the disease*** *associated and the possible pathogen* that is causing the risk. Also, identifying the transmission medium of the pathogen that helps for the better level of isloation and prevent outbreak.



4. Brings awareness among people about the level of MDR risk in the hospital using ***Digital Twin*** of hospital(dashboard-display) on large screens and allows them to take precautionary measures accordingly.



5. Real-Time video surveillence ***using Open CV to trace contact*** *of MDR* patients with other patients in hospital that are missed by QR code scanning.

EXPECTED OUTCOMES

Expected Solution:
Students may propose a hospital IT system add-on, dashboard, or mobile/web application that integrates with existing hospital data and enables real-time alerts.

A hospital infection-control system that:

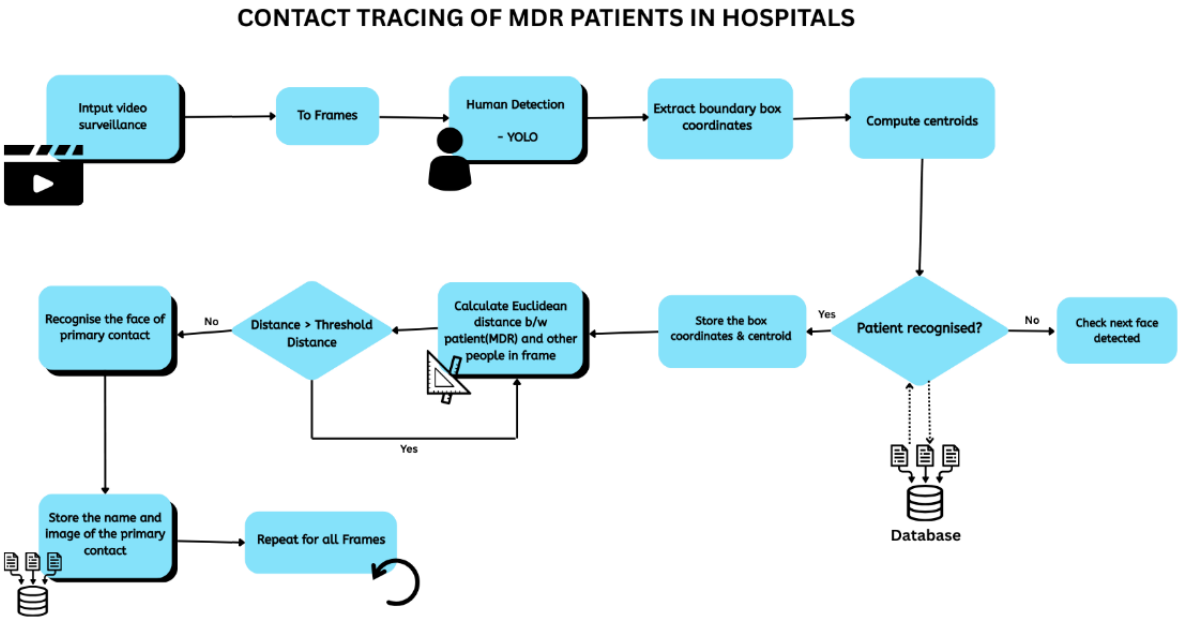
1. Tracks patient movement/contacts inside hospitals.
2. Flags MDR exposure chains in real-time.
3. Integrates with hospital EHR and lab systems.
4. Generates automated alerts for infection control teams.

Our Solution:

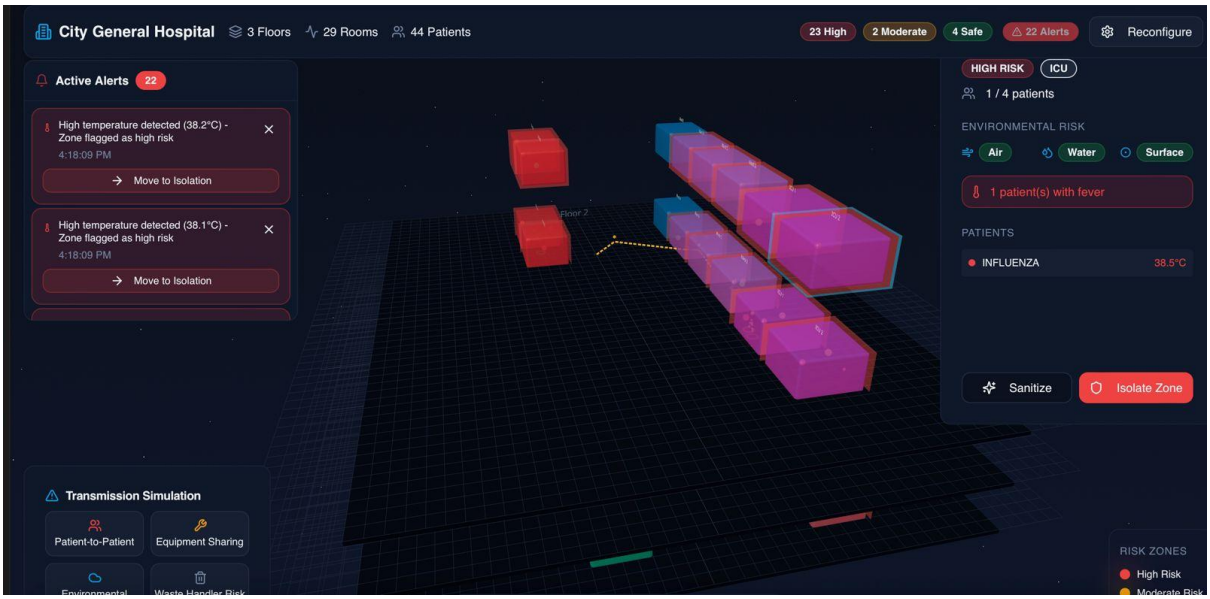
1. Movement/Contact:

- Movement : Through GUI – QR Code based movement tracking across different wards, usage of different equipments with timestamps.

- Contact: Contact based tracing is done using real time video Surveillance using Computer Vision

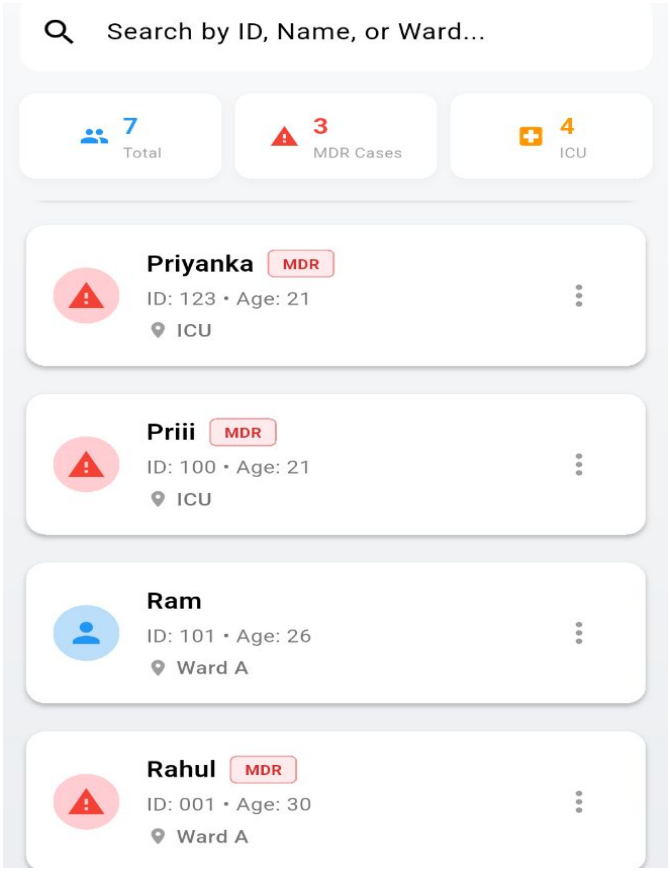


2. Flags MDR exposure:
    - Individual MDR risk : diagnostic report as inputs to ML model that predicts the Risk basically categorised into level of exposure (high, medium, low risks) based on ICMR guidelines.



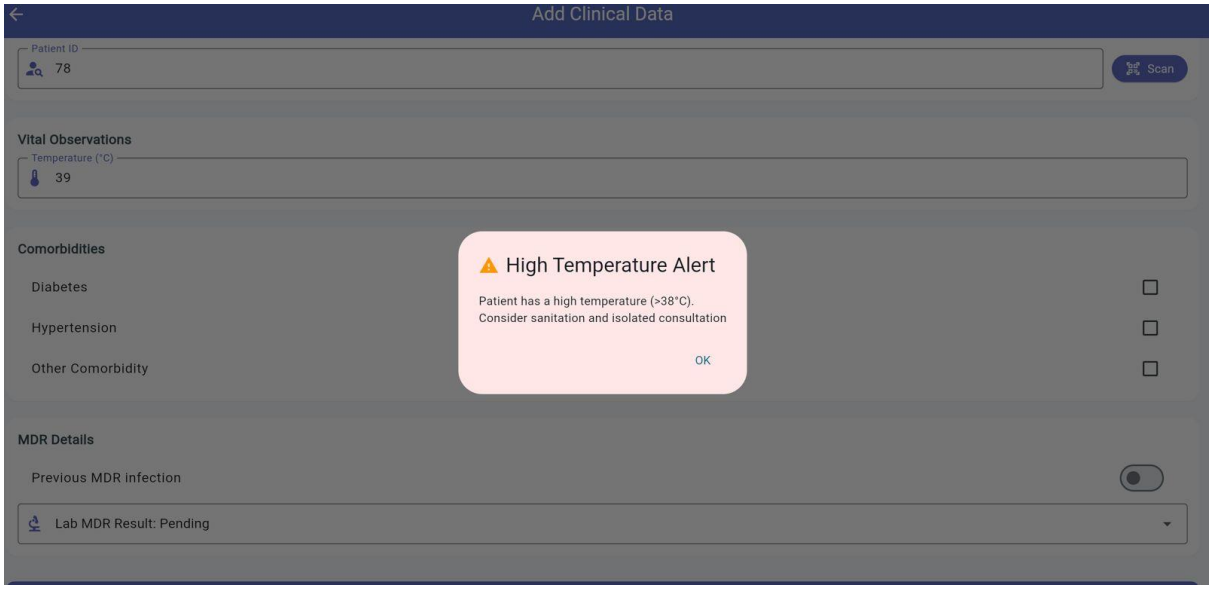
- Level of MDR exposure inside a hosptial is done through Digital Twin using different colour codes.

3. Integrates with Hospital EHR and Lab Systems :
    - Frontend GUI to accept the input of diagnostic reports and storing it in the database that has aligned with the hospital EHR system further analysis and actions.



4.Generates Automated Alerts for Infection:

- Initial Thermal Screening Alert on patient entry with sanitizing for **isolated consultation** (Pre-Disgnosis/**helps to prevent outbreaks**).



- Patient Level of Risk through AI Model – High level, Medium, Low Level risks

- Alert the Infection Control Team at hospital through digital twin dashboard display across corridors of hospital, and also alerts everyone present in the hospital so that they can take precautions and prevent further spread of infection.