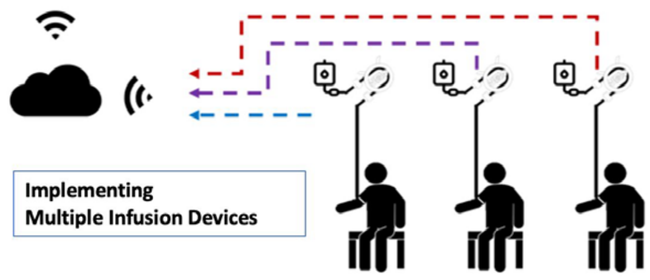
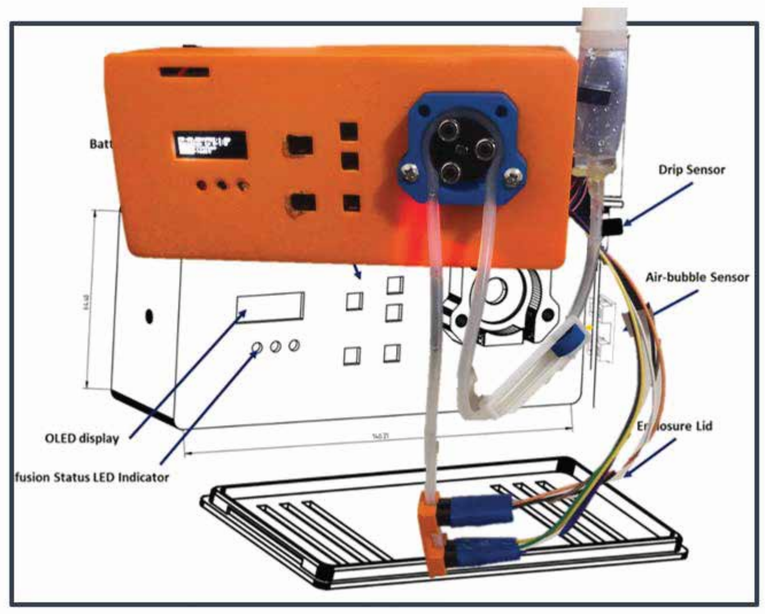
IOT-BASED AUTOMATED DRUG INFUSION DEVICE

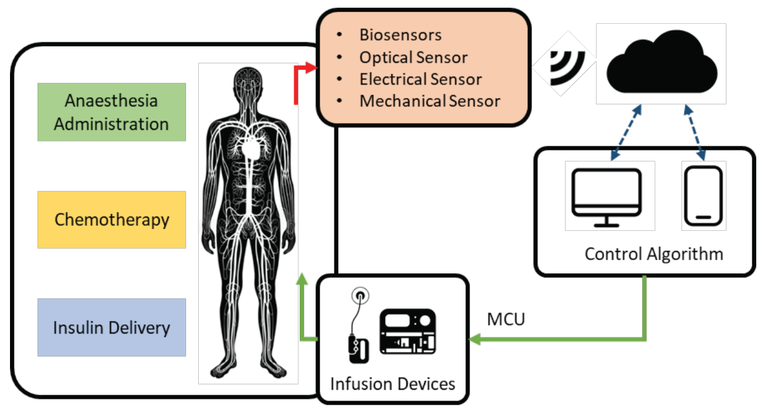
Design and develop a low-cost IoT-based Automated Drug Infusion Device that can control and monitor the infusion flow rate, volume of intravenous fluid, and the time of infusion process accurately via local or remote communication protocols.

Bachelor of Electrical & Electronic Engineering
Final Year Project by Loo Zheng Yuan (3342201)
Supervisor: Dr. Joseph Chai and Dr Kok Chiang Liang

(Sponsored by NAIHE Small Research Project Grant 2022)



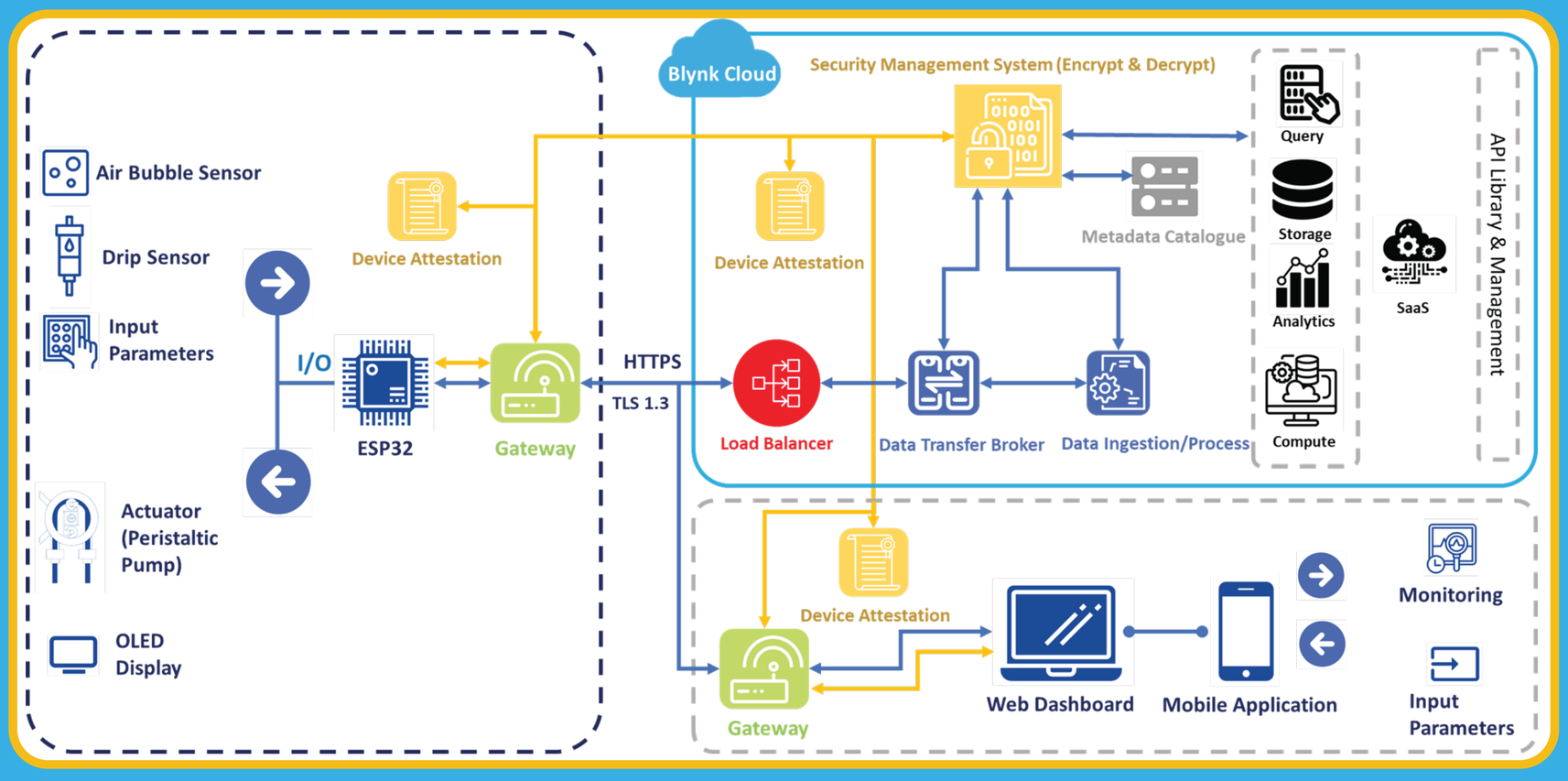




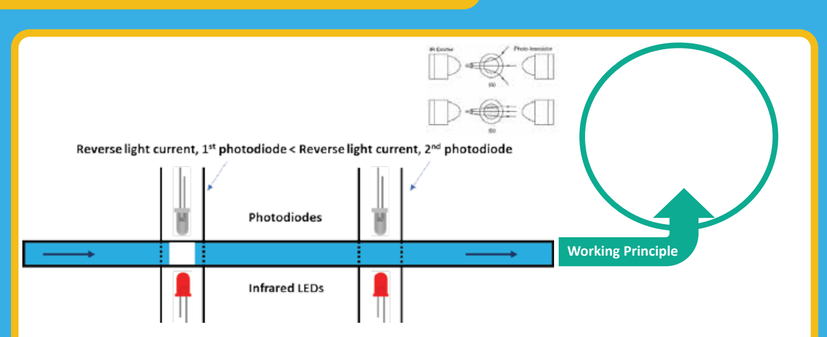
BACKGROUND

- **Infusion therapy is one of the most effective medical techniques that delivers fluids, medications, & nutrition directly into a person's body**
- **Automated drug infusion has become the norm of modern treatments in wards and/or from home requiring a high level of safety and supervision requirements**
- **Problem to solve – practitioners must constantly monitor and supervise the infusion rate throughout the infusion process to make sure that the patient has a safe and effective treatment**

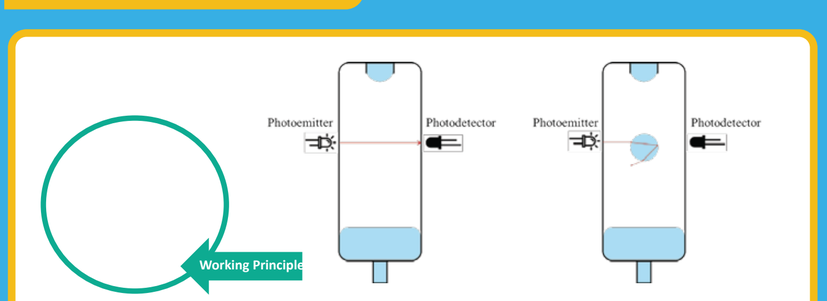
IOT ARCHITECTURE



AIR BUBBLE SENSOR



DRIP SENSOR



SPECIFICATIONS & TESTED RESULTS

- **WEIGHT - 335G**
- **FLOW RATE: 0.1 - 1150ML/HR**
- **VTBI: 0.1-9999ML**
- **ACCURACY: ±6.47%**
- **BATTERY: ≈ 19 HOURS (6800MAH)**

CONCLUSION

The IoT-based drug infusion device as a design promises to be a critical step in the long-overdue rediscovery of healthcare equipment. Such a device would aid in addressing the issues of IV infusion treatment by supporting medical professionals in hospitals and caregivers in the home.

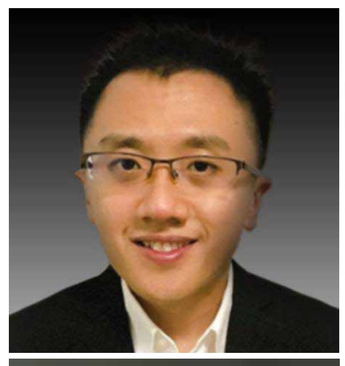
SUSTAINABLE DEVELOPMENT GOALS

3 GOOD HEALTH AND WELL-BEING

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

11 SUSTAINABLE CITIES AND COMMUNITIES

SCAN TO LEARN MORE



DR KOK CHIANG LIANG
LECTURER
PROGRAM COORDINATOR

COLLEGE OF ENGINEERING, SCIENCE AND ENVIRONMENT

CHIANGLIANG.KOK@NEWCASTLE.EDU.AU

DR JOSEPH CHAI
DIRECTOR AND BOARD MEMBER
INVIVO MEDICAL PTE LTD