



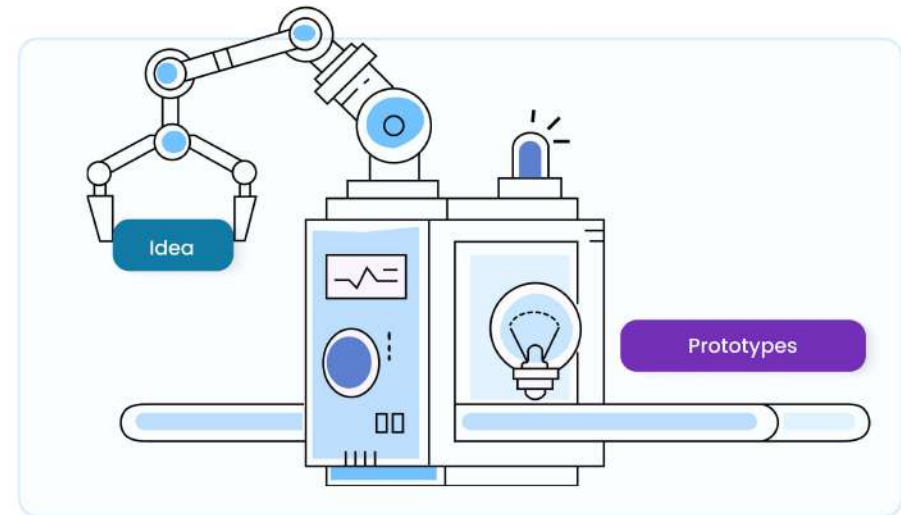
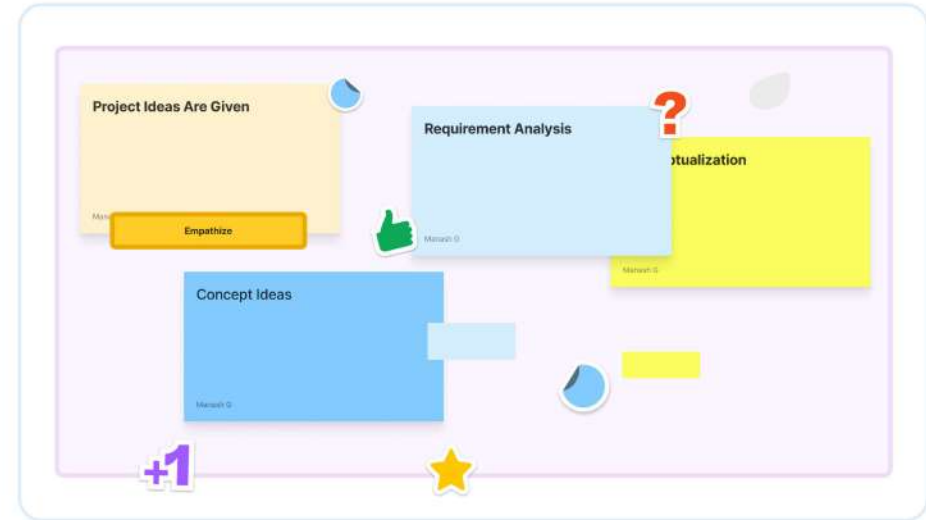
Krishnaworks
Technology Innovations

Capability Deck —●

Building Prototypes

- Identifying components & development kits.
- Assembling them on general purpose PCBs.

Capability Deck



Bare Metal Firmware Development

- PIC • MSP 430 • ARM
- TIVA C • Silicon Labs EFM8
- SD Card, FAT File System
- USB – Control, Interrupt, Bulk Transfer
- Bluetooth Classic EDR 2.1 and BLE • TCP/ IP
- MQTT • PWM • LCD • LoRa – RFM95W
- 7 Segment LED • I2C, SPI, 1-wire



Firmware Development on Free RTOS

Capability Deck

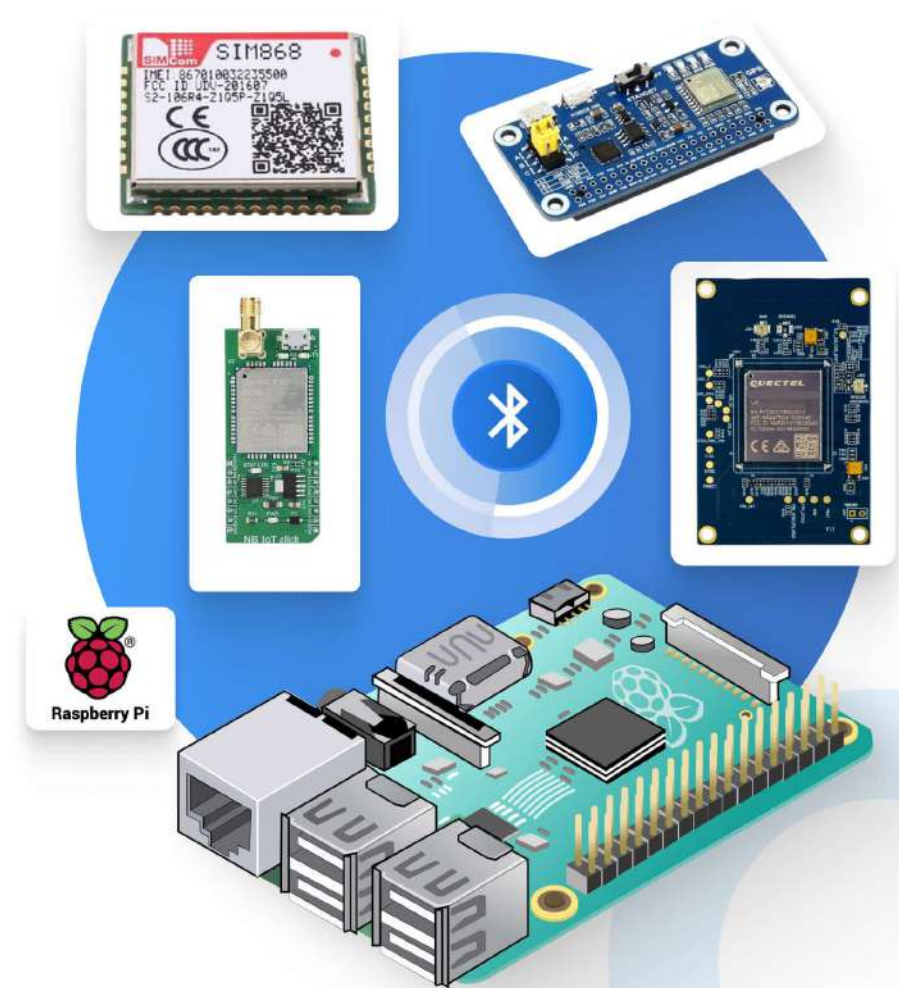
- ESP32, STM32 • Mesh Network – WiFi/BLE
- WiFi/BLE co-existence • LTE • ESP NOW
- ESP Rain Cloud • ESP Touch
- Node: Access Point/Station mode
- 4G-SIMCOM 7600X, Quectel – HTTP, FTP – AT Command , PPPOE Mode
- LCD, OLED • Bluetooth, NIMBLE • OTA • SPIFFS
- FAT File System, VFS • RMT • HTTP Server
- Captive Portal • Provisioning • LoRa, LoRaWAN
- 7 RFID LED • I2C, Temperature Sensor • NFC
- ADC – Potentiometers, Voltage dividers, battery level monitoring



Single Board Computers (SBCs)

Capability Deck

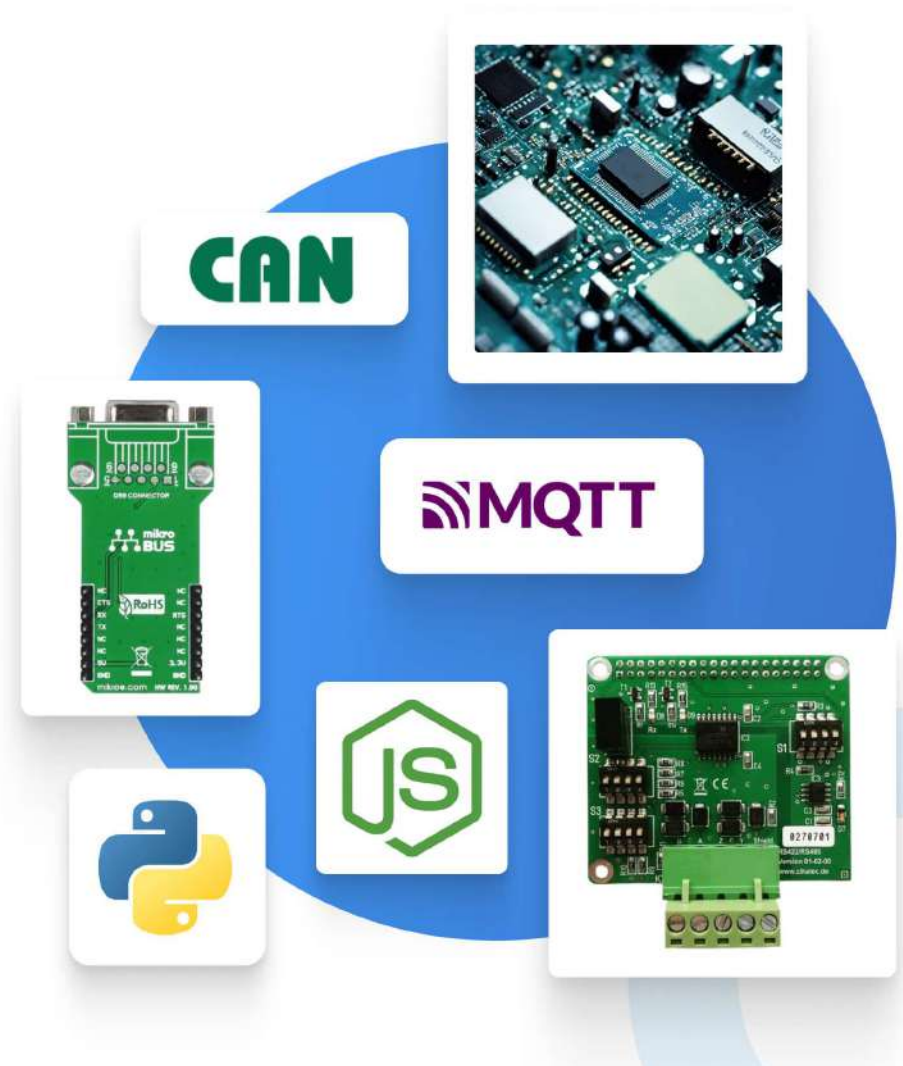
- Raspberry Pi (5, 4B, Pi Zero 2W, CM4 with I/O expansion packs: RS485)
- IoT Edge Gateways – Dell, Compulab, Laird, Dusun
- Debian OS (Ubuntu, Raspbian)
- LTE Modules (Quectel, Simcom)
- GPS Modules (Simcom, Raspberry Pi HATs)
- Bluetooth, NIMBLE • Creating custom BLE device
- LTE Internet: NDIS, RNDIS
- LTE Internet over Serial and USB interface
- System services • OTA (Over-the-Air) updates



Single Board Computers (SBCs)

- Scripts (cron, python, bash)
- Applications (Node, Python) • Kiosk modes
- Device monitoring and dashboards
- Cloud to device communication
- Captive portal for provisioning
- MQTT (local and cloud broker)
- Sockets (TCP, UDP) • System programming
- Network priorities • DMA
- SMI (Secondary Memory Interface)
- OBD (On-Board Diagnostics), CAN BUS
- RS232, RS485, Modbus

Capability Deck



Cloud

- AWS (Greengrass, IoT Core, Thing, S3, DynamoDB, Kafka, MQ, Postgres, IAM, Amplify, SNS, SES, Lambda, Cloud Watch, Cognito)
- Azure (AD, IoT hub, Event hub, Stream Analytics, Blob storage, Cosmos db, Change feed, Signal R)
- GCP (firebase, authentication, firestore, storage, notifications, App engine, Compute engine, Reserved IPs)

Capability Deck



Cloud

- DigitalOcean, GCP, AWS, Azure
- Fleet provisioning • Fleet monitoring on maps
- Grafana dashboards • Load balancers
- Nginx, gunicorn • Cron jobs, System services
- Websockets • SQL (Postgre database)
- X509 certificate security
- noSQL (Mongo, firestore, cosmos, dynamoDB)
- Timeseries database - Influx database

Capability Deck



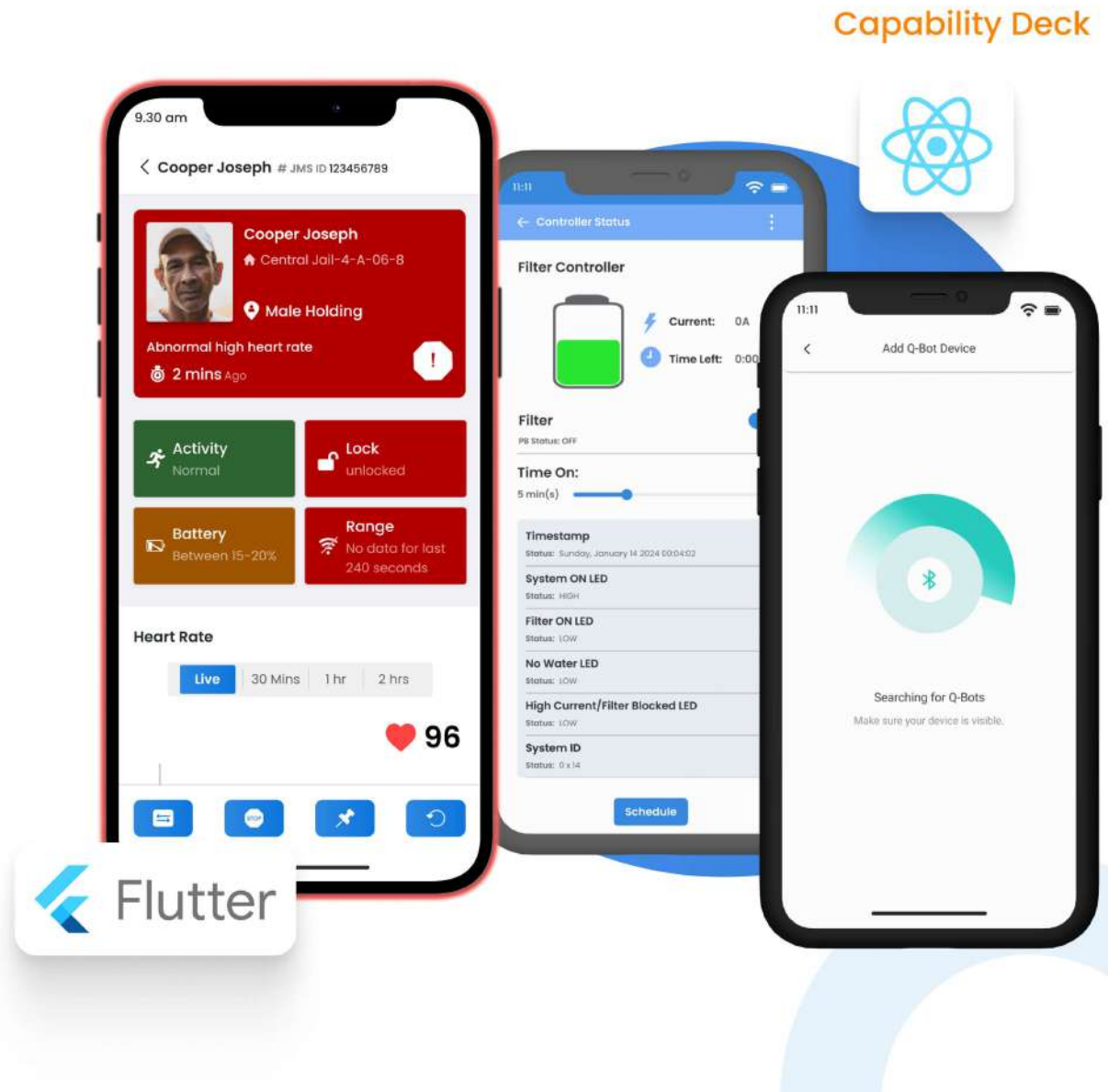
Smart Devices

- Smart Locks
- Smart Water Valves
- Z-Wave protocols
- Samsung SmartThings
- Hub drivers
- Smart device capability and feature enhancements



Mobile Apps

- Frameworks (flutter)
- Native Mobile apps
- Bluetooth Low Energy
- Media compressions and encoding



Capability Deck

Backend

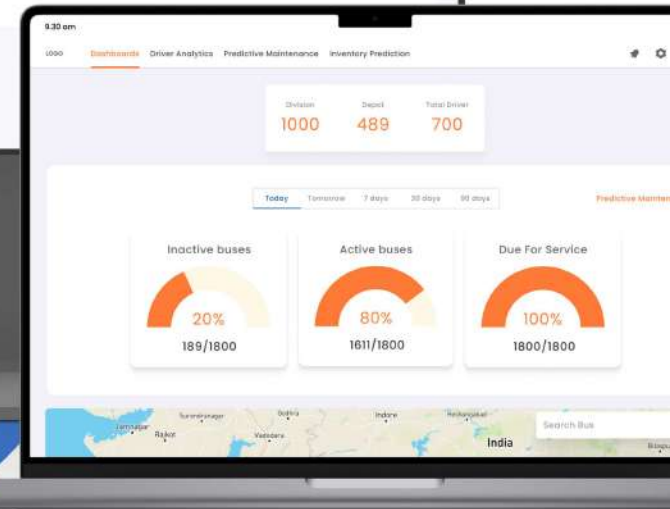
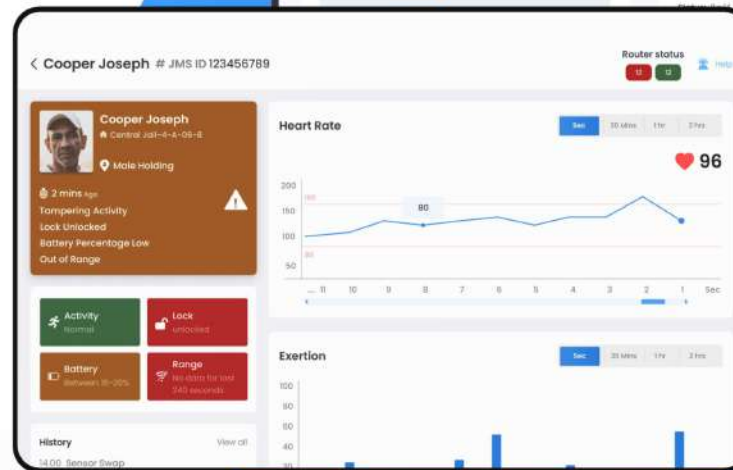
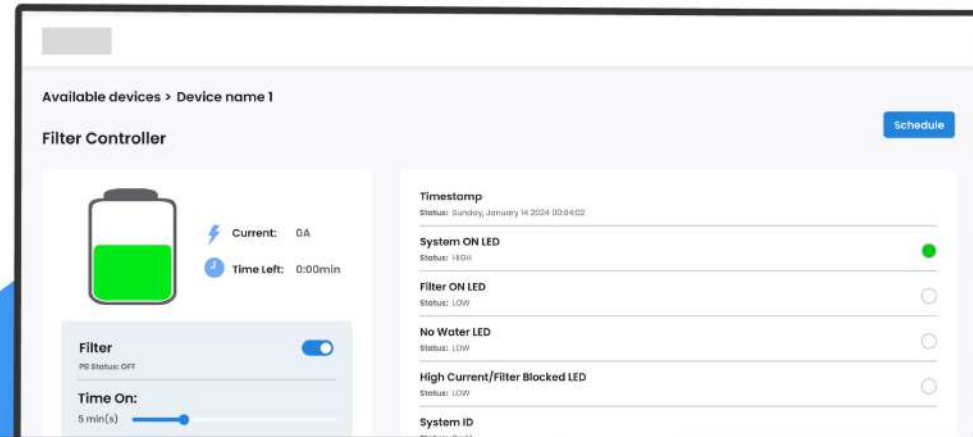
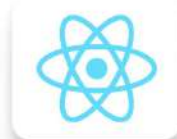
- NodeJS, ExpressJS
- Python/Flask/Django • APIs
- Media compressions and encoding
- Authentication, authorization, roles
- ORMs (Prisma, Sequelize)
- Websockets
- Swagger documentation



Capability Deck

Web Apps

- ReactJS
- NextJS

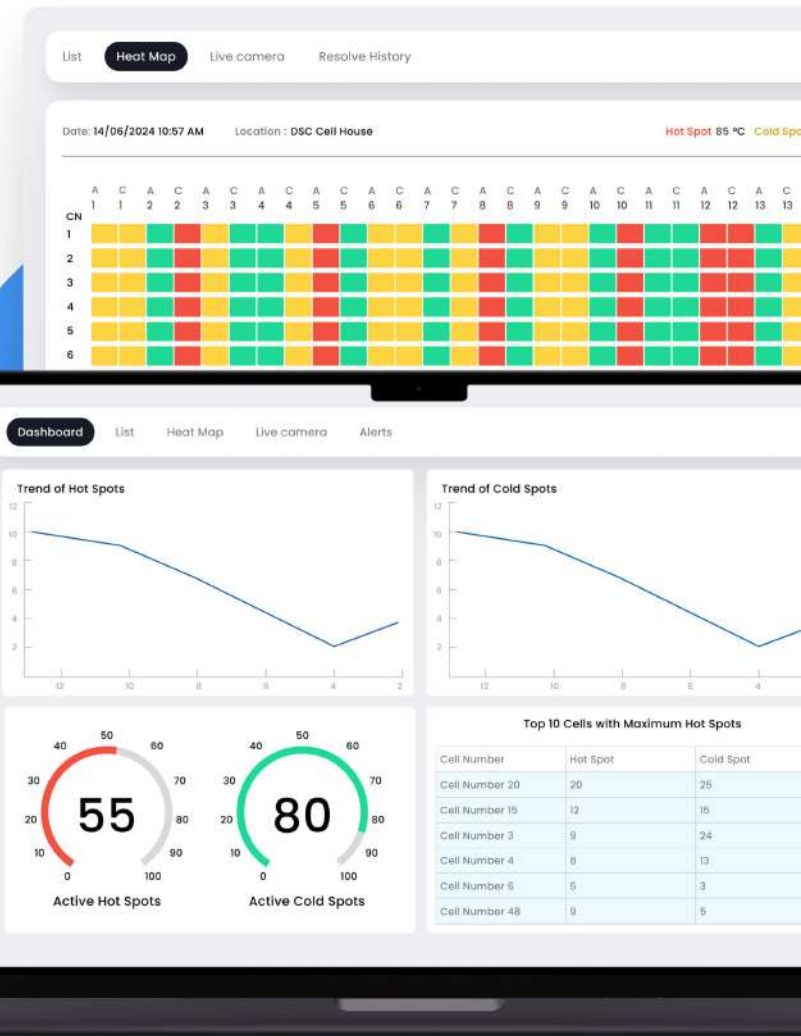


AI/ML

- Pronunciation assessment (cognitive skills)
- Mobilenet • FaceNet (SVM)
- VGGFace • Yolo v3 • UNET • Python
- TensorFlow, TF-Lite, HL5
- Transformer • BERT • LLM • NLP
- Hotspot and Coldspot monitoring for Industrial IoT

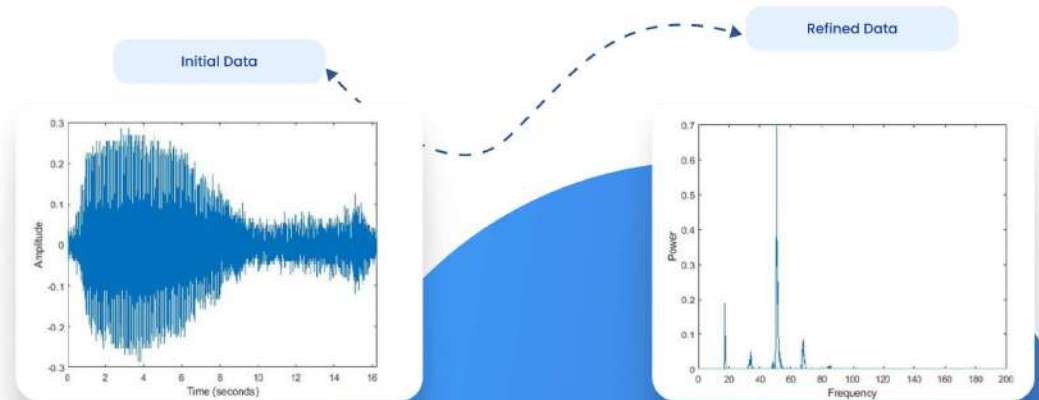


Capability Deck



Algorithms

- FFTs (Fast fourier transforms)
- PWM (Pulse wave modulations)
- DSP (Digital Signal Processings)



Solution sectors

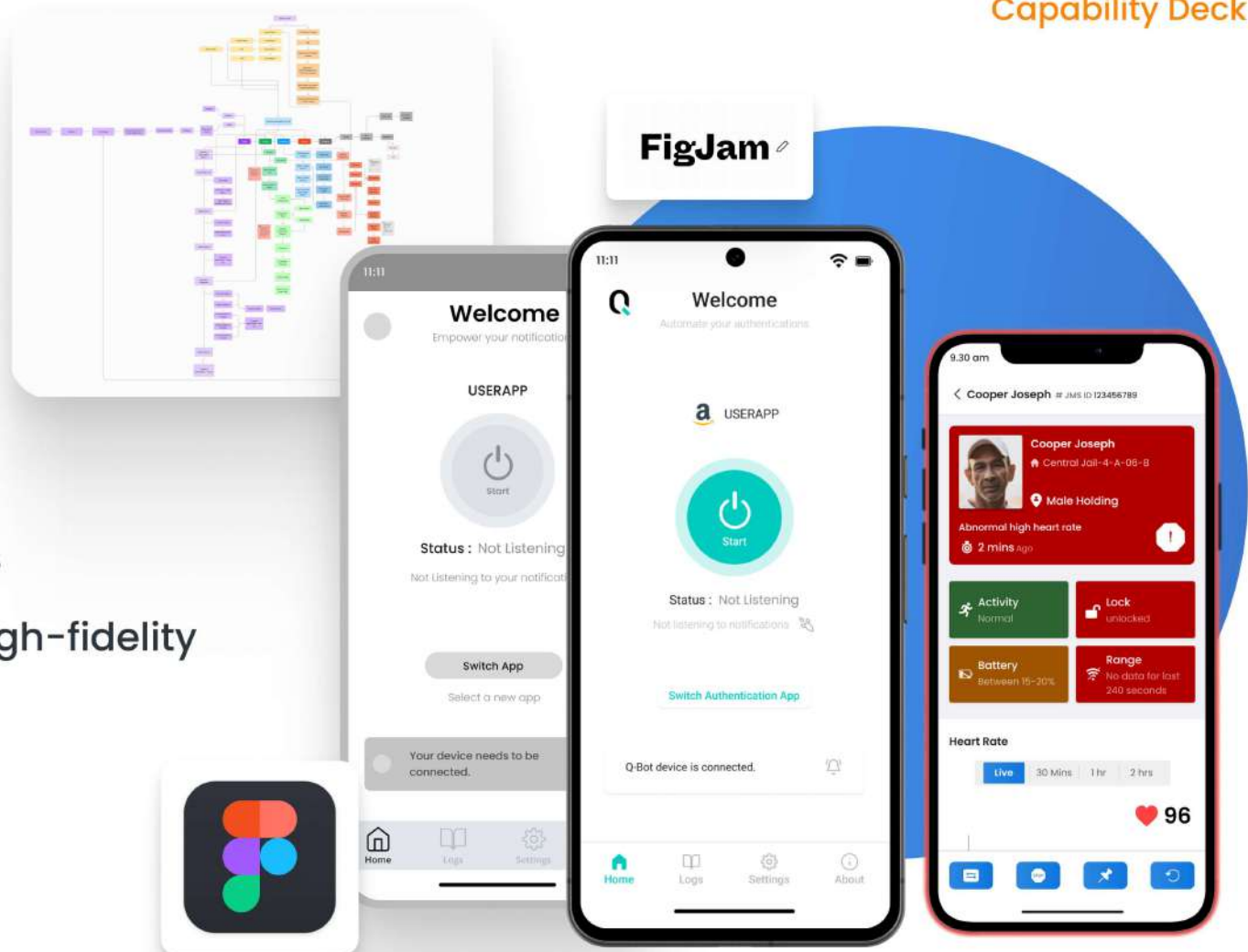
- Healthcare
- Critical health monitoring
- Telematics
- Mobility
- Home Automation
- Restaurant Management
- Order/PoS Management
- Hospitality

Capability Deck



UI/UX

- Information architecture
- Prototyping • Wireframes
- Low-fidelity, mid-fidelity, high-fidelity



QA

- Selenium framework
- Appium mobile automation framework
- Test engine • Hybrid framework
- Behavior Driven Development (BDD)
- Test Driven Development (TDD) • Pynt
- Newman • Jest

