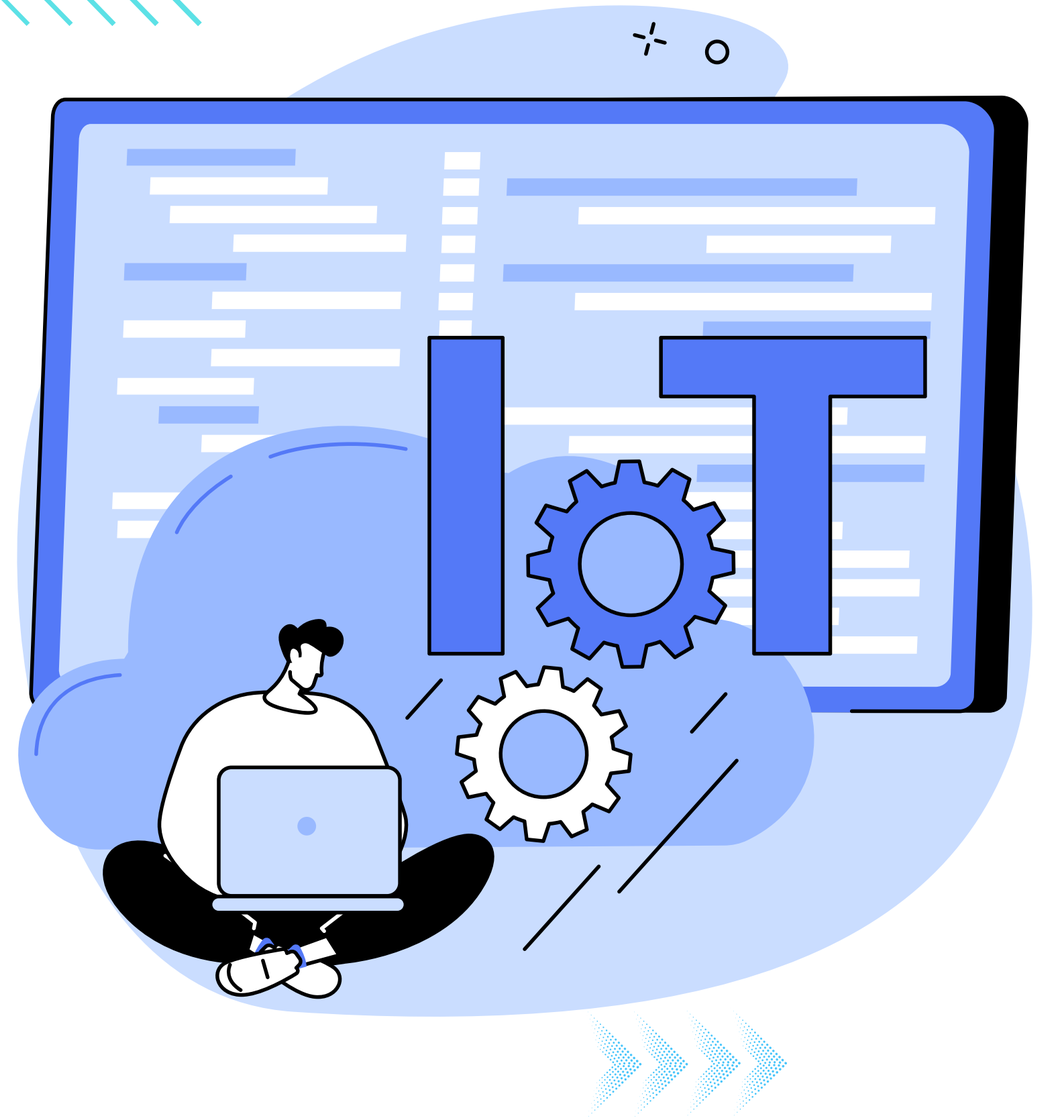
DiGi PRIMA

IoT Expertise

Helping Build Scalable IoT Solutions & making Connected Devices Smarter



+91 9755570042

info@digiprima.com

www.digiprima.com

About Us

- *We aspire to supply high-quality products for both hardware design and the creation of integrated cloud solutions.*
- *We follow agile as well as waterfall methodology to conquer design as well as integration challenges.*
- *We offer World Class Product Conceptualization and Development.*
- *Industrial IoT 4.0 and other popular standards are adopted to ensure seamless incorporation in the industry.*
- *Committed to Deliver the Highest Quality.*
- *Full Life Cycle Capabilities – Concept, Hardware, Firmware, UI/UX, Development, Multi-Device QA.*
- *250+ team of Hardware, Firmware, Cloud, and Mobile Experts–Committed to Delivering the Highest Quality.*

Our Design and Development Ideology

- ***We focus on full infrastructure design*** *and development and/or integration into an existingecosystem.*
- *We aim to deliver a product that is both state-of-the-art as well as meets the* ***highest standards in the industry.***
- ***High emphasis on close interaction*** *with the client and time-to-time demonstration upon achievement of milestones.*
- ***Iterative Development process*** *with shorter sprints to bring out the best in what we do.*

Case Studies

Problem Analysis and the Proposed/Accepted Solutions

+91 9755570042

info@digiprima.com

www.digiprima.com

Field Expertise

- *To demonstrate the experience we hold in this domain we are going to present some of the phenomenal case studies and solutions that we have delivered to our most valuable clients.*
- *These studies and solutions make use of various segments of IoT, Cloud, Embedded System design, Data Acquisition, and Processing Technologies so as to develop a solution that is robust and cost-effective.*
- *Emphasis is placed on durability and optimization for the mass production.*

Industry Leading Tech Stack that Pillars our IoT Solutions

Connectivity Between Devices

Wireless, Ethernet, Bluetooth, 4G LTE, NFC, GSM, Network (2G/3G And SMS)

Cloud Platforms

AWS, Windows Azure, Google Cloud, IBM Bluemix, ThingsWorx

Web Services

Restful service, OAuth Authorization services, SOAP services, Things API

Operating Systems

Android, iOS, Windows 10

Data Analytics

Data Process And Analytics, BIGDATA, Machine Learning

Supported Protocols

HTTP, HTTPS, TCP, COAP, UDP, MQTT, XMP, MODBUS

Driving Forces For IoT

Miniature Boards Sensor, Power Connectivity, Cloud Sync, User Application, Alljoyn, Brillo Weave

Standards

OPENIoT, HomeKit, Alljoyn, Brillo, Weave

+91 9755570042

info@digiprima.com

www.digiprima.com

Smart Door Lock *Enable Smart and Connected capabilities*

Problem Statement

- *Hassle Free Hotel check-in and check-out.*
- *Ease the KYC process.*
- *Eliminate the Redundant KYC process.*
- *Reduce customer foot-fall on reception.*
- *Ease Room-service activity.*
- *Reducing on-the-spot room allocation time.*

Solution

Web portal and mobile app: *For booking and admin purposes.*

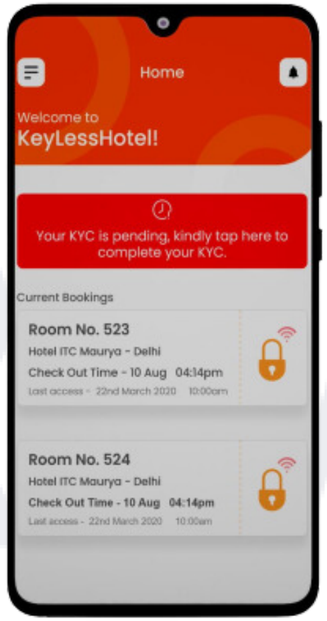
Centralized One-time KYC: *Complete KYC once and never again.*

Mobile app for Staff: *One-stop solution for maintenance Activities.*

KYC free Check-in.

IoT enabled Locks with OTA.

Product

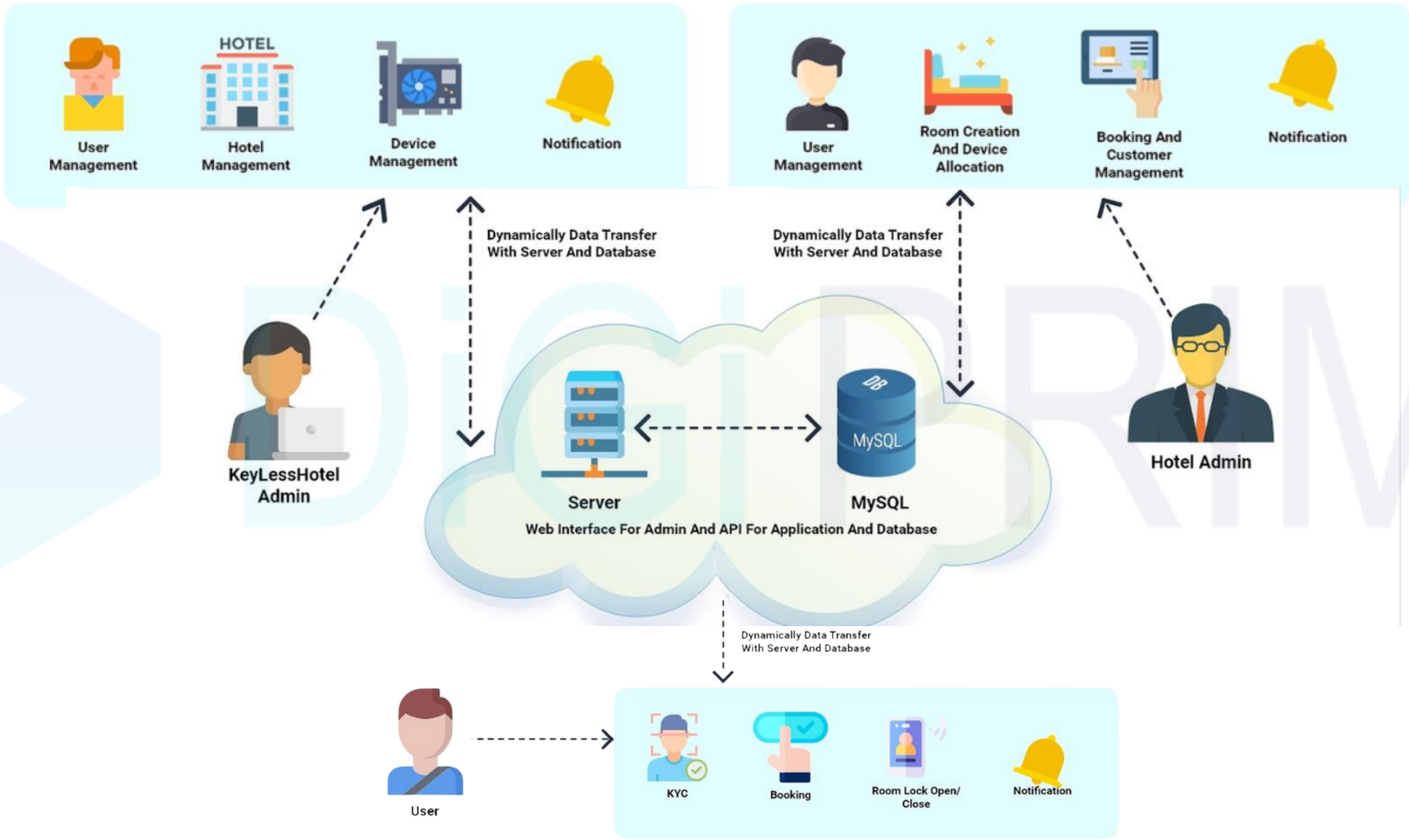


+91 9755570042

info@digiprima.com

www.digiprima.com

Smart Door Lock - System Architecture



Smart Table

IoT Enabled Smart Table

Problem Statement

- ***Smart features In Table:*** *Ability to raise Monitor, Skew, Tilt, and Raise height of the entire Desk.*
- ***Multi User Registration & Guest Account:*** *Ability to create multiple user profiles and store up to 10 named height settings per user.*
- ***UI for selecting user, Login and Height Preset.***
- ***Connectivity to the Internet for remote management.***

Solution

Python PYQT5 based: *For user login and preset settings and other actions.*

Hardware communication with LINAK controllers.

LINBUS is used for Interlinking various Actuator controllers.

Standard Off the shelf hardware for robustness and Longevity.

Jetson nano-based power SBC for heat resistance and high-speed USB connectivity.

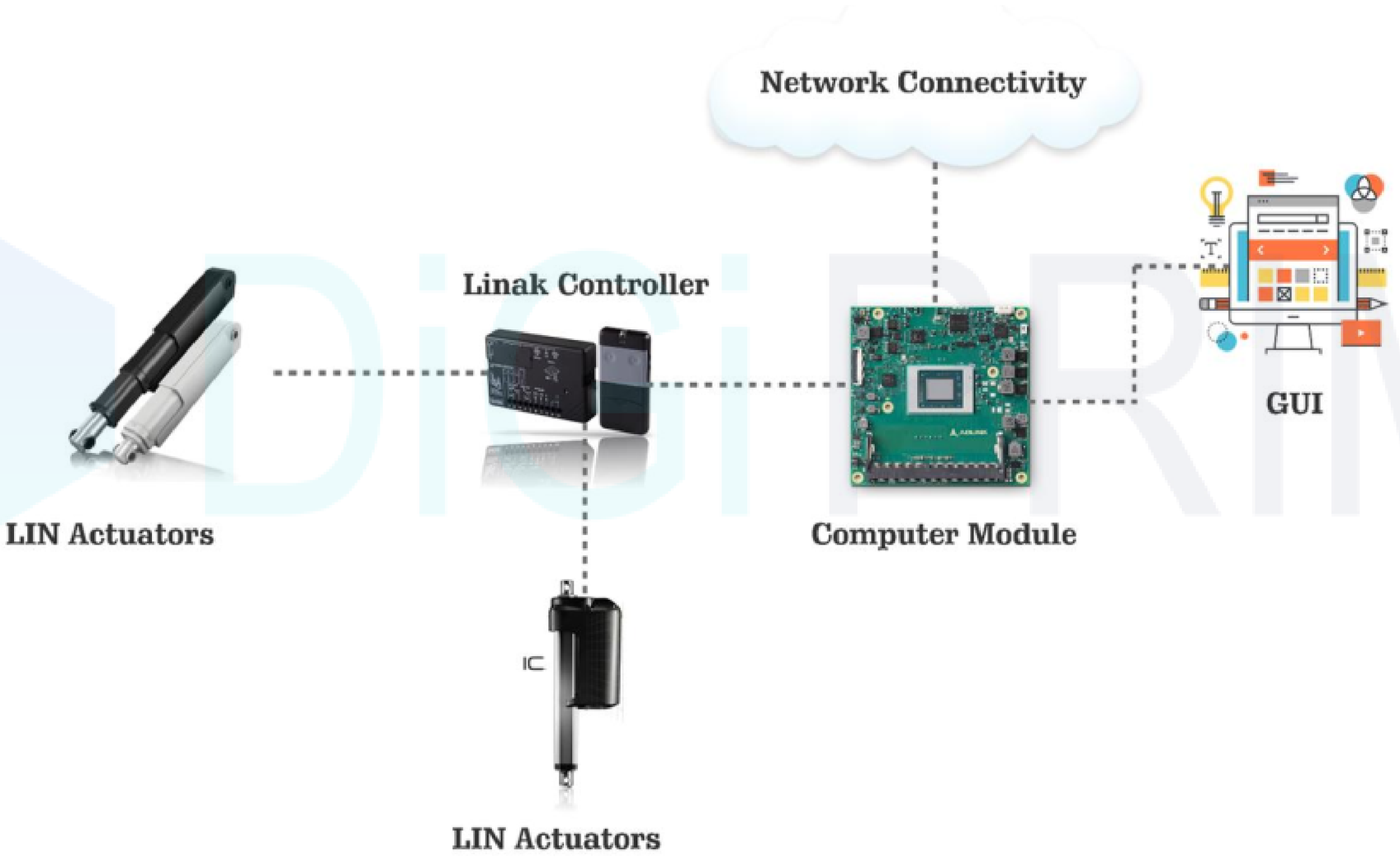
Product

+91 9755570042

info@digiprima.com

www.digiprima.com

Smart Table - System Architecture



Waste Sorting and Disposal Machine

IoT enabled Waste Sorting and Managing waste materials

Problem Statement

- ***Waste sorting mechanism:*** *Distinguish between Glass, Plastic, and Tin.*
- ***Segregation of Materials:*** *Reporting whenever the bins are full.*
- ***UI for inputting Mobile number and Trash Type.***
- ***Live Rewarding feature.***

Solution

- ***Android-Based UI: For Mobile Number and Trash Type.***
- ***Hardware Backed Trash Detection System.***
- ***Api developed with trash data being sent:*** *To allow data collection and reward distribution.*
- ***Multiple Sensors for Redundancy.***
- ***Optional ML connectivity.***

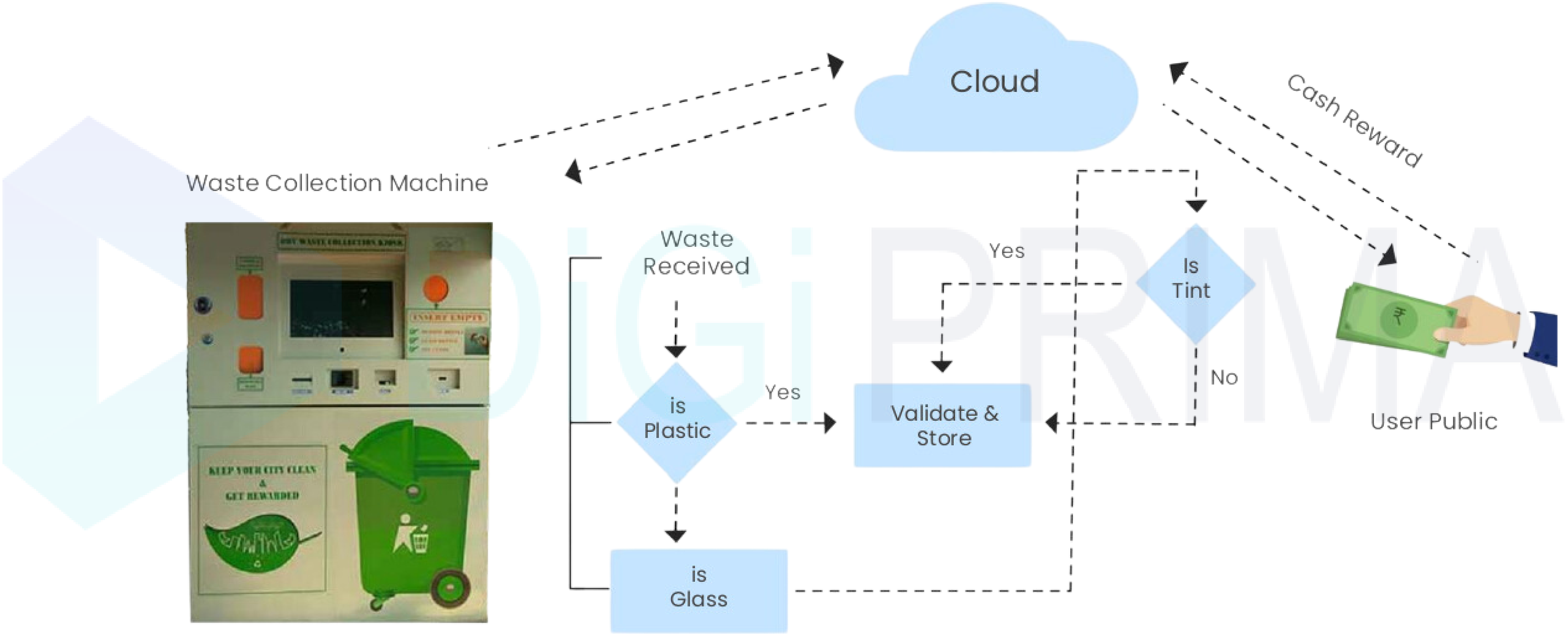
Product

+91 9755570042

info@digiprima.com

www.digiprima.com

Waste Sorting and Disposal Machine - System Architecture



Motion Activated Audio Player

***Motion Activated Audio player for Adults and* differently-abled.**

Problem Statement

- ***PIR-based Motion Activated Alert:*** *Playback System Notifying Elderly or differently abled.*
- ***MobileApp with AWS backed:*** *Cloud Infrastructure for Audio Files and controlling other Device parameters.*
- ***App Notifications: in case of any Event.***
- ***Device Schedules.***
- ***BMS and Charging*** *Monitoring.*

Solution

- ***TI's Wifi processor-based solution.***
- ***Inbuilt NAND flash storage.***
- ***Low-power amplifier for longer battery life.***
- ***Built-in deep sleep mode:*** *For reducing overall power consumption.*
- ***Android app for controlling device:*** *And file uploads.*
- ***AWS IoT core, Greengrass, and s3 integration.***

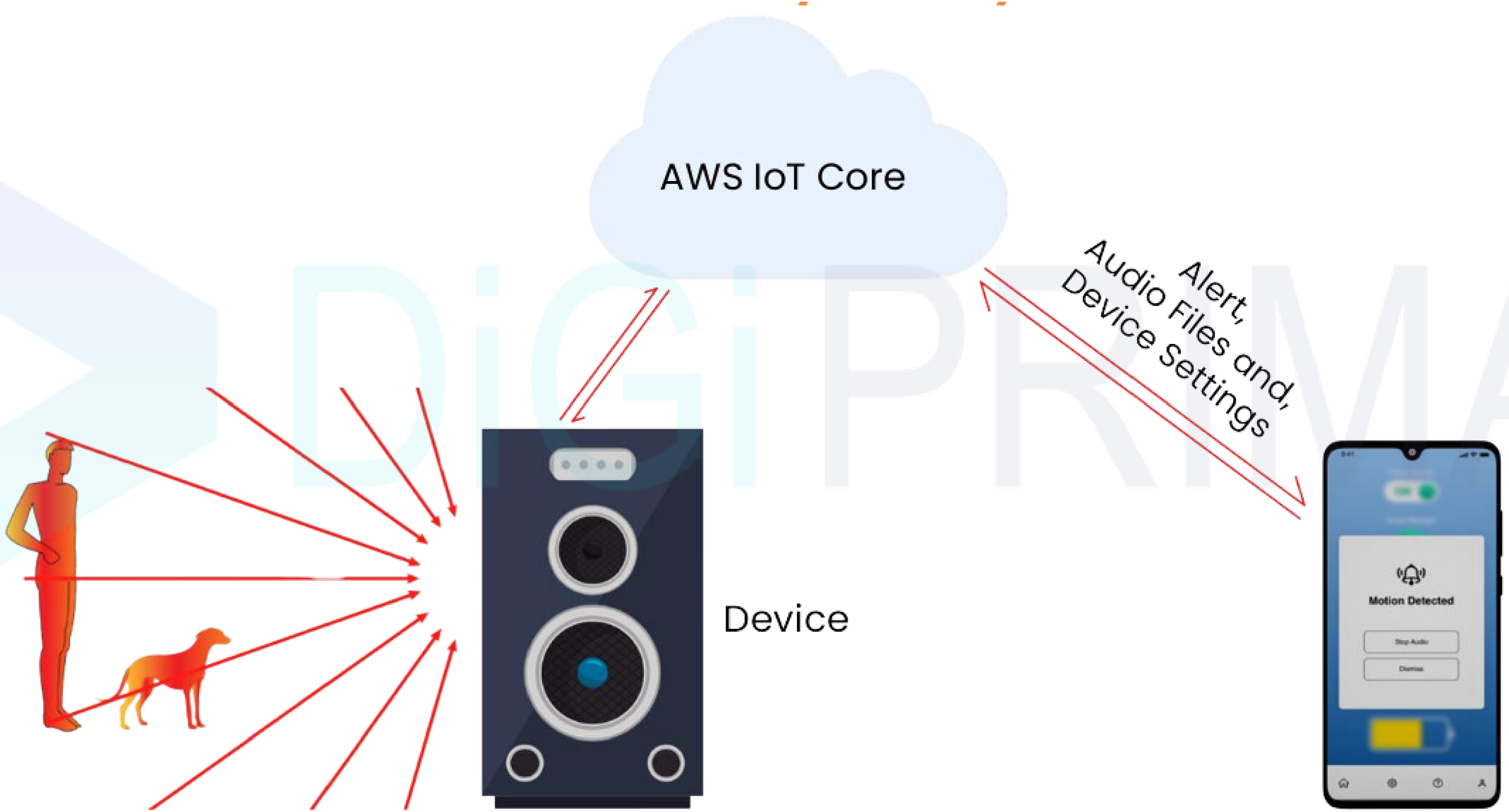
Product

+91 9755570042

info@digiprima.com

www.digiprima.com

Celes - System Architecture



Celes Power Management and Home Automation

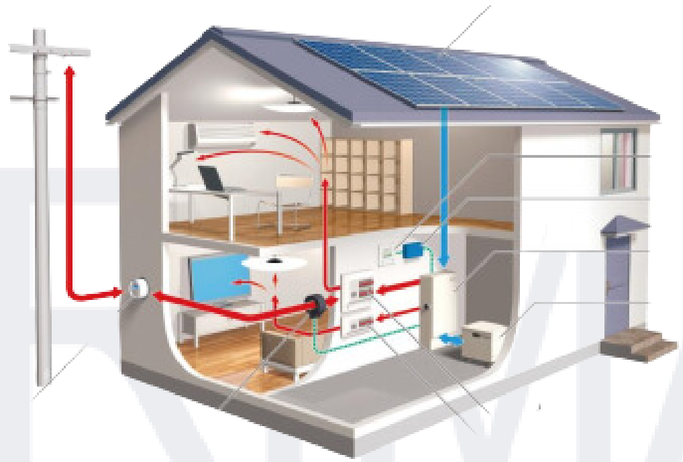
Problem Statement

- ***A zigbee based Home Automation System:*** *Control based on renewable power availability.*
- ***Maintain different profiles:*** *For elements like a Pool heater, EV charging, etc.*
- ***Use Off the shelf Zigbee and Z-Wave devices.***
- ***Optimizing Grid power usage:*** *To minimize bills and maximize the use of solar energy.*

Solution

- ***Raspberry Pi SBC-based Solution:*** *Interactive UI and Touch Interface.*
- ***Zigbee and Z-Wave compatibility:*** *for off-the-shelf devices.*
- ***Smart Energy meter for Power Monitoring.***
- ***Integrated Weather API: Along with grid power rates API.***
- ***OTA Updates.***
- ***Subscription-Based access.***

Product

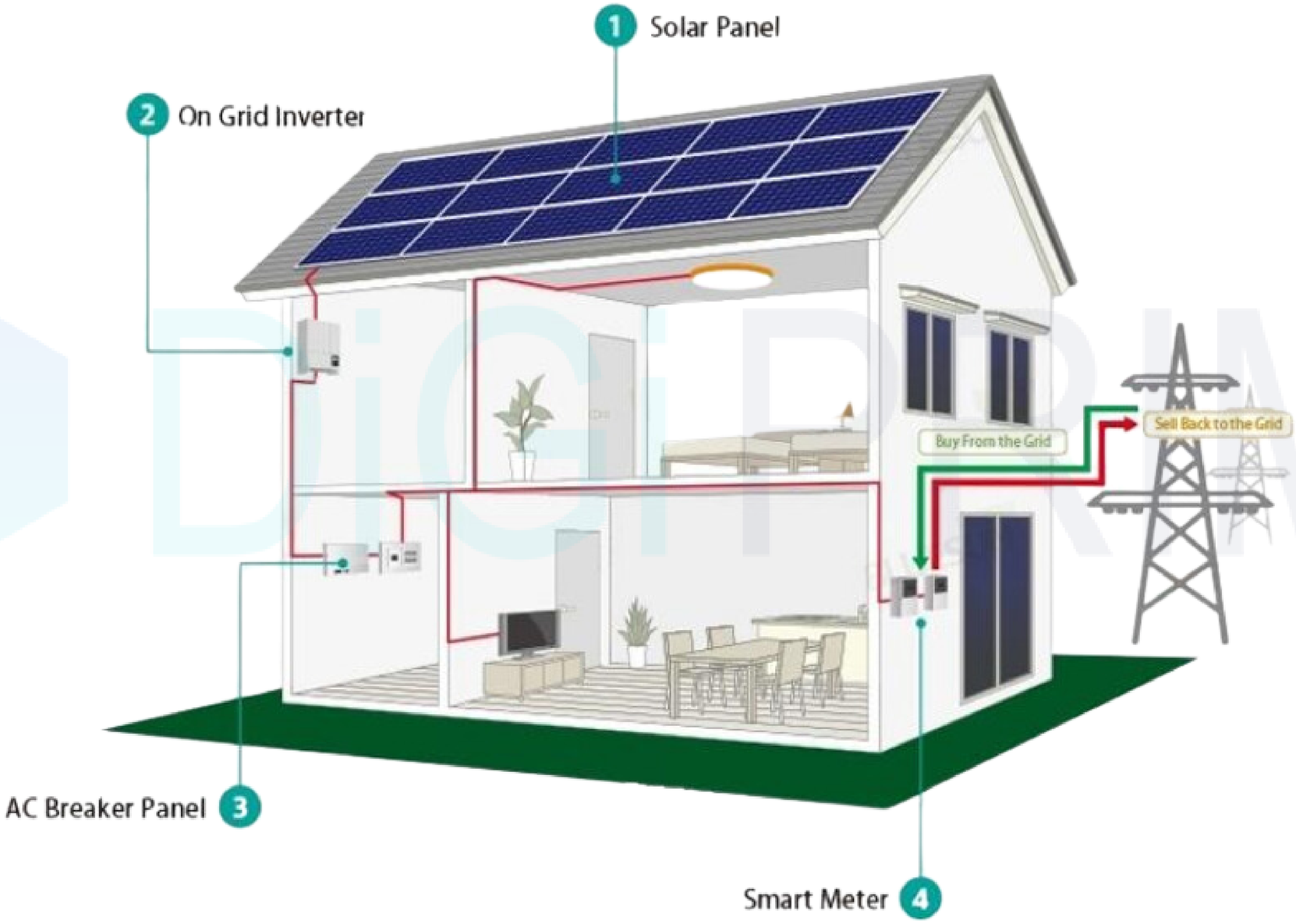


+91 9755570042

info@digiprima.com

www.digiprima.com

Celes - System Architecture



EV Health Monitoring

Measure and Report all the vital statistics from the OBD port

Problem Statement

- ***Live Health Reporting from the vehicle:*** *Over LTE from the vehicle's OBD port.*
- ***Stats from vehicle's BMS:*** *To determine the health of the battery pack and Hazardous situation prevention.*
- ***Current GPS Location.***
- ***Transmit only after set thresholds.***
- ***Web portal:*** *To manage all the vehicles and visualize the real-time data.*

Solution

- ***TI SBC based Constant OBD monitoring***
- ***Realtime GPS and Data reporting:*** *Over Azure IoT core.*
- ***Interactive Dashboard for Admin:*** *For monitoring status of the vehicles sold/leased.*
- ***LTE based data reporting.***
- ***Adjustable data thresholds.***
- ***Historical data storage*** *for each vehicle.*

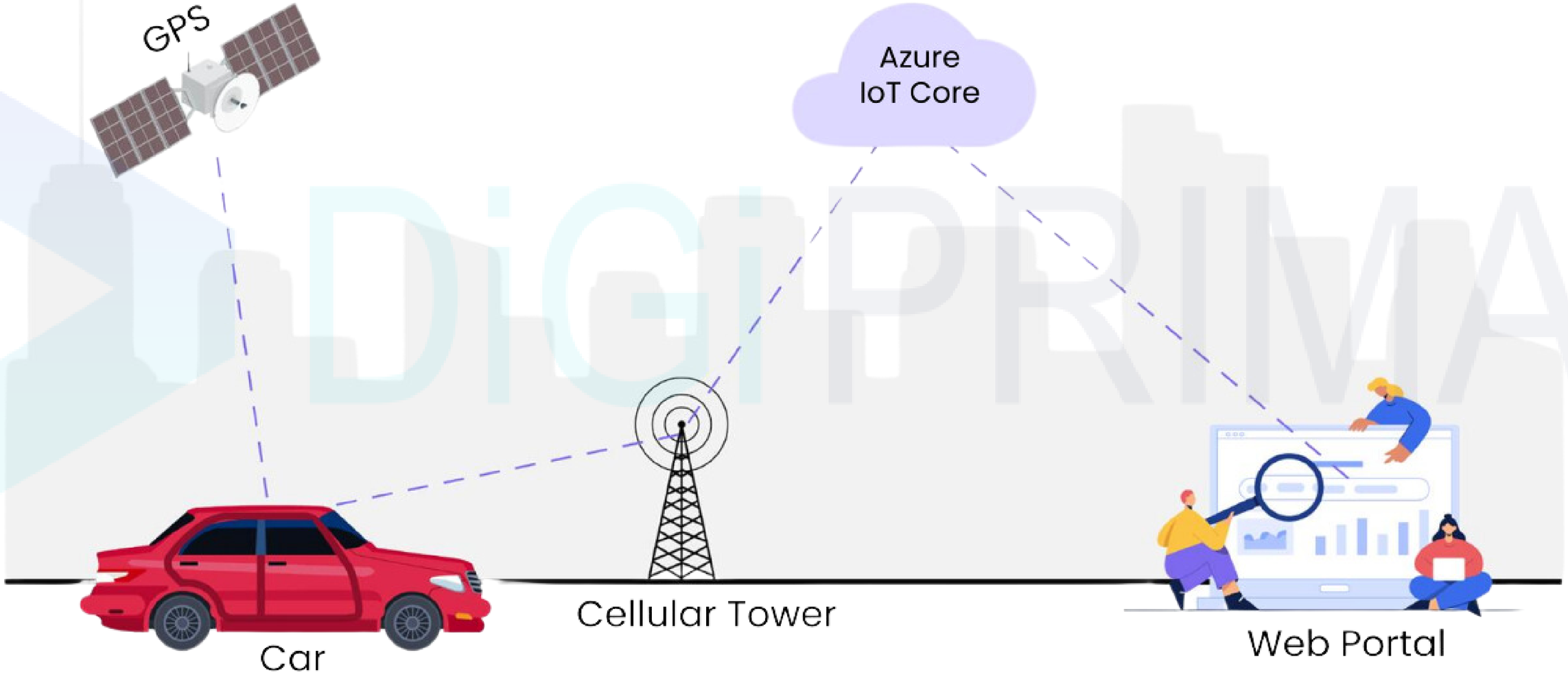
Product

+91 9755570042

info@digiprima.com

www.digiprima.com

EV Health Monitoring - System Architecture



Paramill Automation with Bluetooth

Adding Wireless capabilities into the paramill to enable profile creation

Problem Statement

- ***Upgrade Existing non-serviceable hardware:*** *Previously running on Android-based Controller.*
- ***Completely re-build android application:*** *Keep existing functionality like training profile etc.*
- ***Change the peripheral controller***
- ***Incorporate an Ant+ receiver:*** *For Heart Rate Data from an On-body sensor.*

Solution

- *Developed a **High-performance Paramill controller** with Bluetooth 4.0 and Ant+ Receiver.*
- ***Developed Android app** having full functionality and additional features.*
- ***Matched the Original Wire harness.***
- ***Successfully integrated Ant+** and transmitted relevant data to the Tablet.*

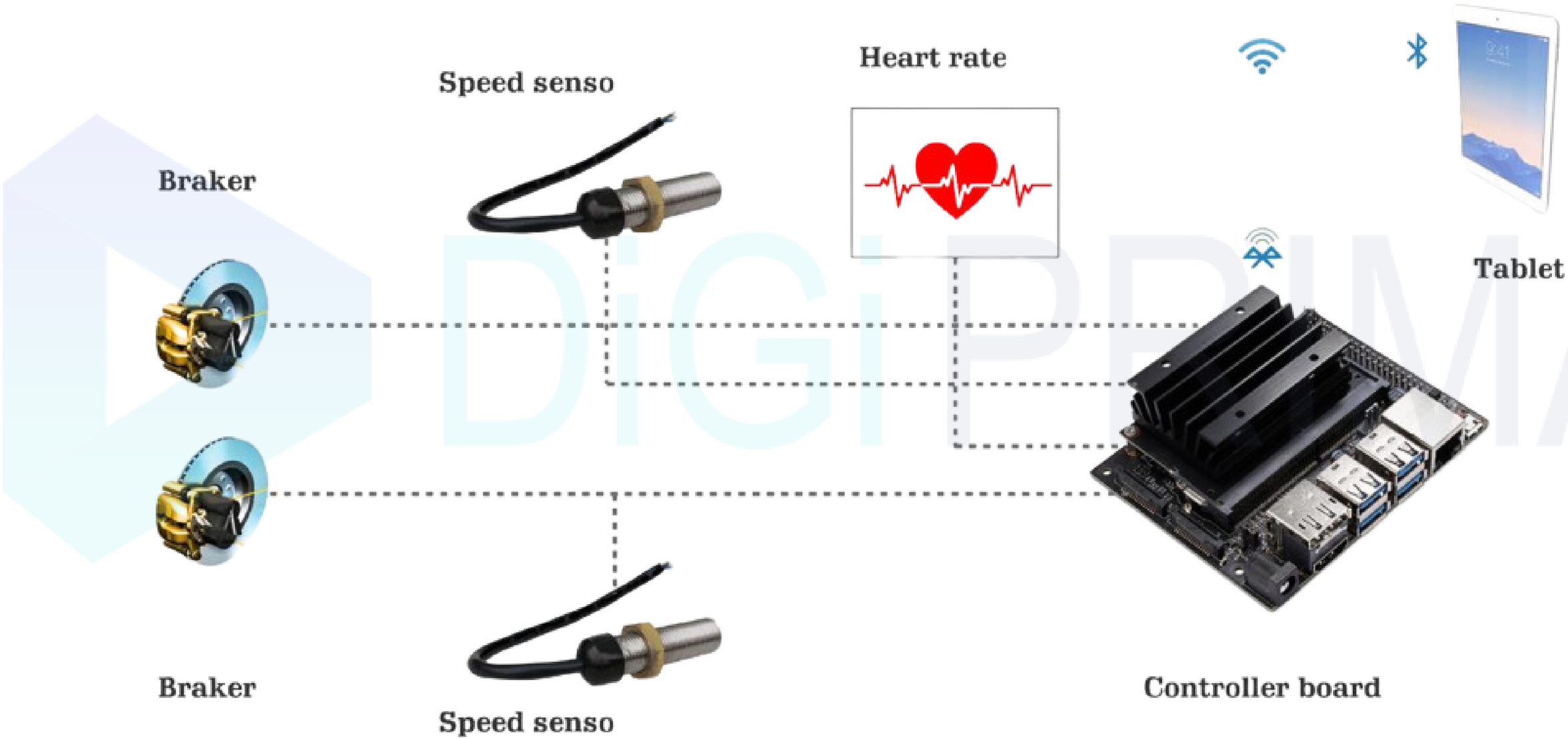
Product

+91 9755570042

info@digiprima.com

www.digiprima.com

Paramill Controller - System Architecture



DAIT Measurement Unit

Measuring and validation of the mechanical Large fluid valve.

Problem Statement

- ***Measure electrical parameters:*** *such as inductance, resistance, Flap opening time, Closing time, Max current consumption, Current consumption at various valve positions, Holding current, and Peak current consumption.*
- ***Application to record data:*** *With Valve Serial number and Status of parameters.*
- ***Data export in the form of Excel sheet:*** *With each parameter's value and overall result.*

Solution

- ***Pc Application with USB connectivity*** *with the measurement unit.*
- ***Aluminum Enclosed Hardware*** *with inbuilt power supply for testing the valves.*
- ***Simple one-touch application*** *activation.*
- ***Complete PCB design*** *with user-serviceable parts for greater flexibility.*

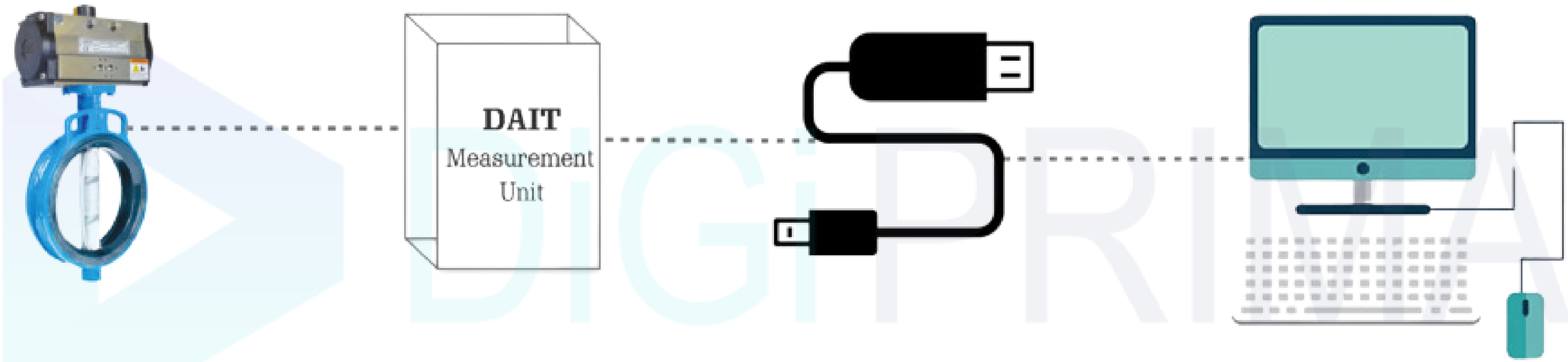
Product

+91 9755570042

info@digiprima.com

www.digiprima.com

DAIT Measurement Unit - System Architecture



RS485 <-> LTE Gateway

Transmitting Data from connected Modbus Device over High Speed 4g LTE network.

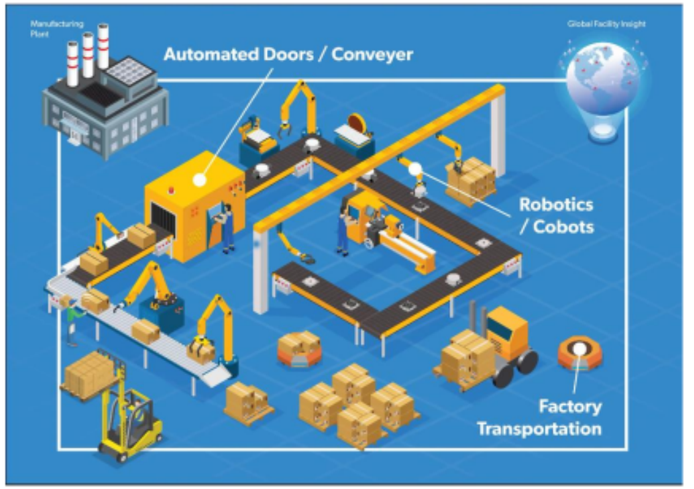
Problem Statement

- ***Collecting Machine Data From Connected Devices:*** *ModBus enabled Devices connected to the gateway are polled at a set interval and collect data from the defined register set.*
- ***Status reporting:*** *The collected data is sent over MQTT to an open broker or to a broker secured with OSSL/SSL.*
- ***Control and Update:*** *Various configuration parameters can be updated in real-time via bundled applications over a control channel.*

Solution

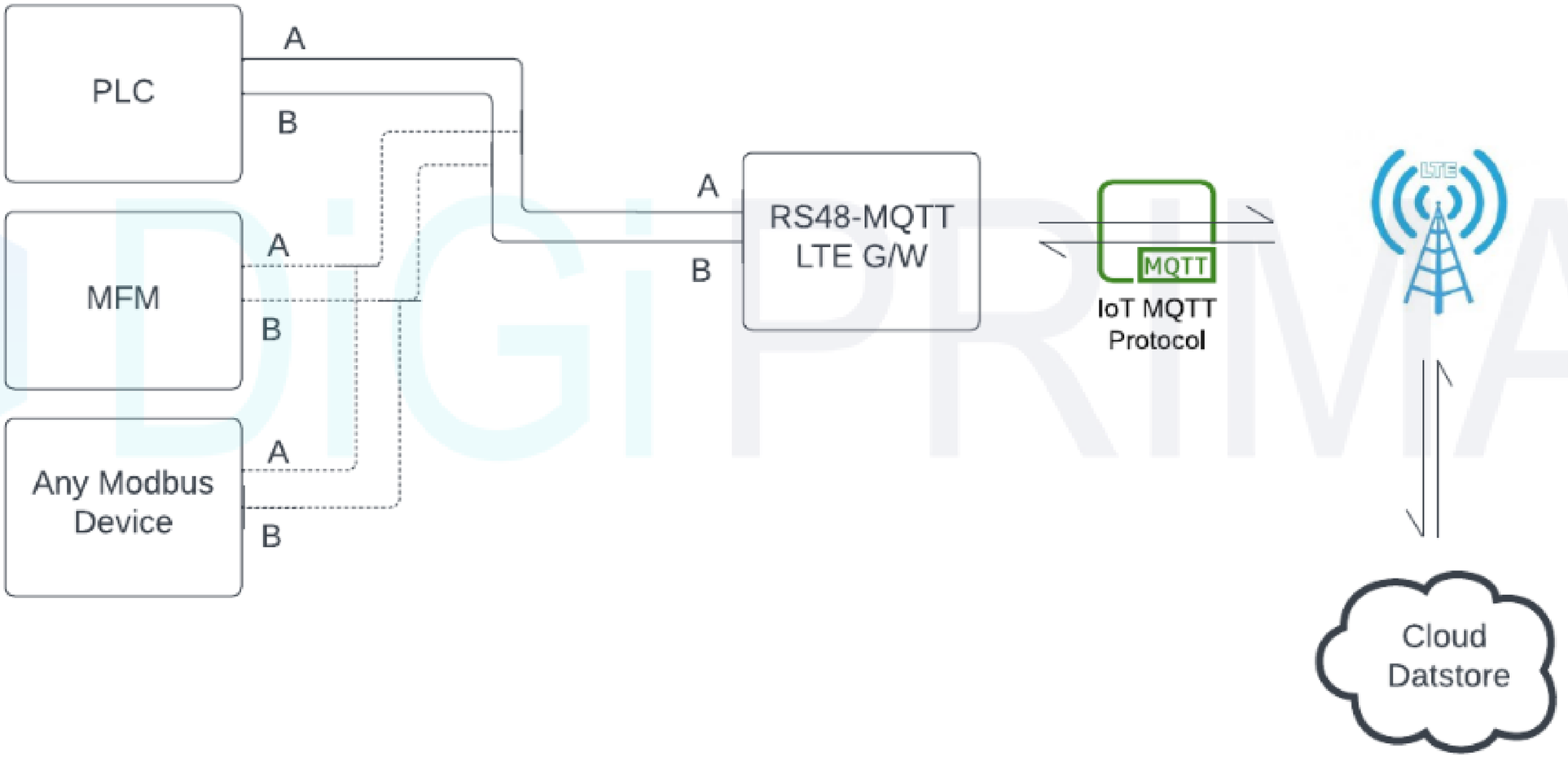
- ***Collecting Machine Data From Connected Devices:*** *ModBus enabled Devices connected to the gateway are polled at a set interval and collect data from the defined register set.*
- ***Status reporting:*** *The collected data is sent over MQTT to an open broker or to a broker secured with OSSL/SSL.*
- ***Control and Update:*** *Various configuration parameters can be updated in real-time via bundled applications over a control channel.*

Product



+91 9755570042
info@digiprima.com
www.digiprima.com

RS485-MQTT-LTE Gateway - Implementation Architecture



Smart Agriculture

Smart Agriculture Solution For Sustainable Growth

Problem Statement

- ***Water Scarcity and Inefficient Irrigation:*** *Limited water resources and inefficient irrigation practices, lead to croploss and increased costs.*
- ***Lack of Data and Informed Decision-Making:*** *Traditionally, farmers rely on experience and guesswork for Crucial decisions like irrigation timing.*
- ***Time Constraints and Manual Labor:*** *Farmers often juggle multiple tasks and have limited time, making manual irrigation management challenging.*

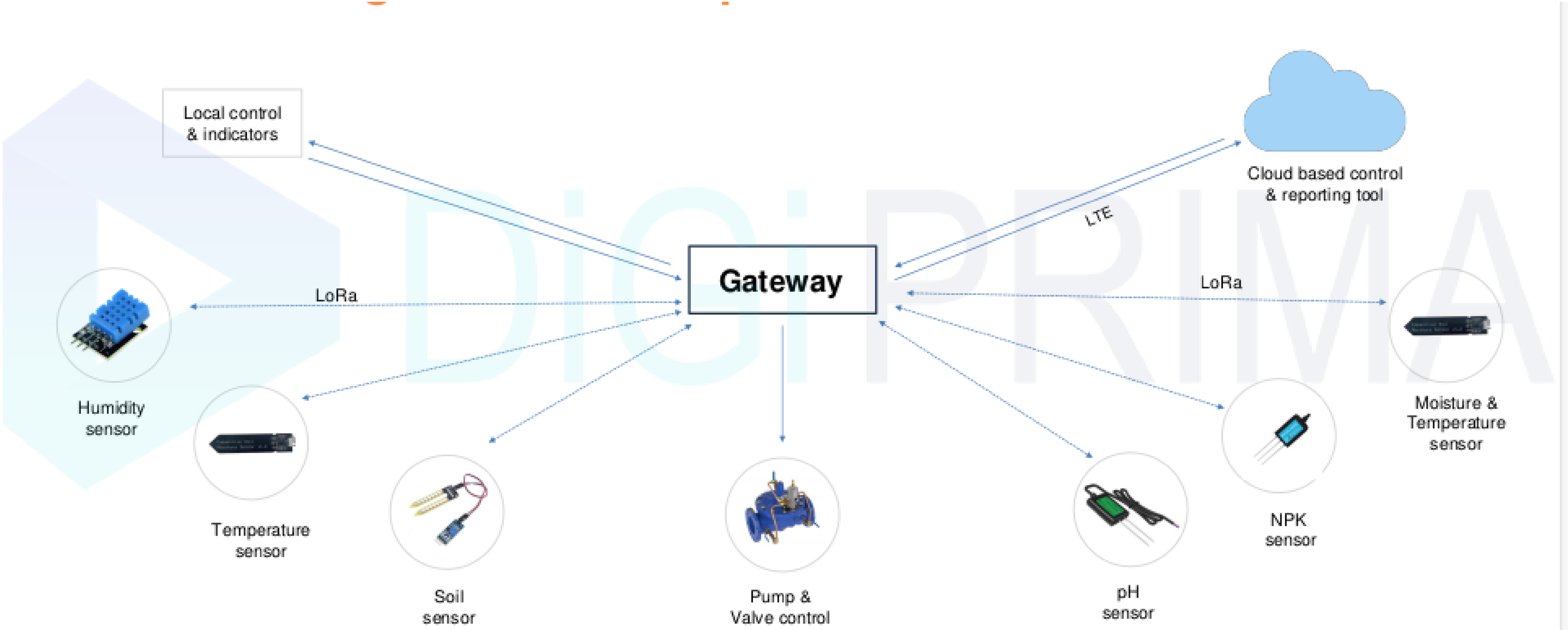
Solution

- ***Battery Optimization:*** *Analyzed and optimized the device's power consumption.*
- ***Enhanced Monitoring Features:*** *Enabled real-time monitoring of moisture levels in the soil, allowing for timely irrigation control.*
- ***Automation for Resource Management:*** *Integrated the system with a water pump activation mechanism, enabling automatic irrigation based on moisture level readings.*

Product

+91 9755570042
info@digiprima.com
www.digiprima.com

Smart Agriculture - Implementation Architecture



Smart WashingMachine Controller

Problem Statement

- ***Adding Smart capability into washing machine:*** *Like app controllability, and integration with Google Home and amazon Alexa.*
- ***Status reporting:*** *Like machine health and current operation cycle.*
- ***App control:*** *For scheduleable operation.*

Solution

- ***Developed and integrated ESP-32-based solution:*** *Handles the App communication and Smart home integration.*
- ***Application and Device gateway development:*** *For smooth integration with hardware.*
- ***Custom skill development for Alexa:*** *For gateway and final hardware integration.*

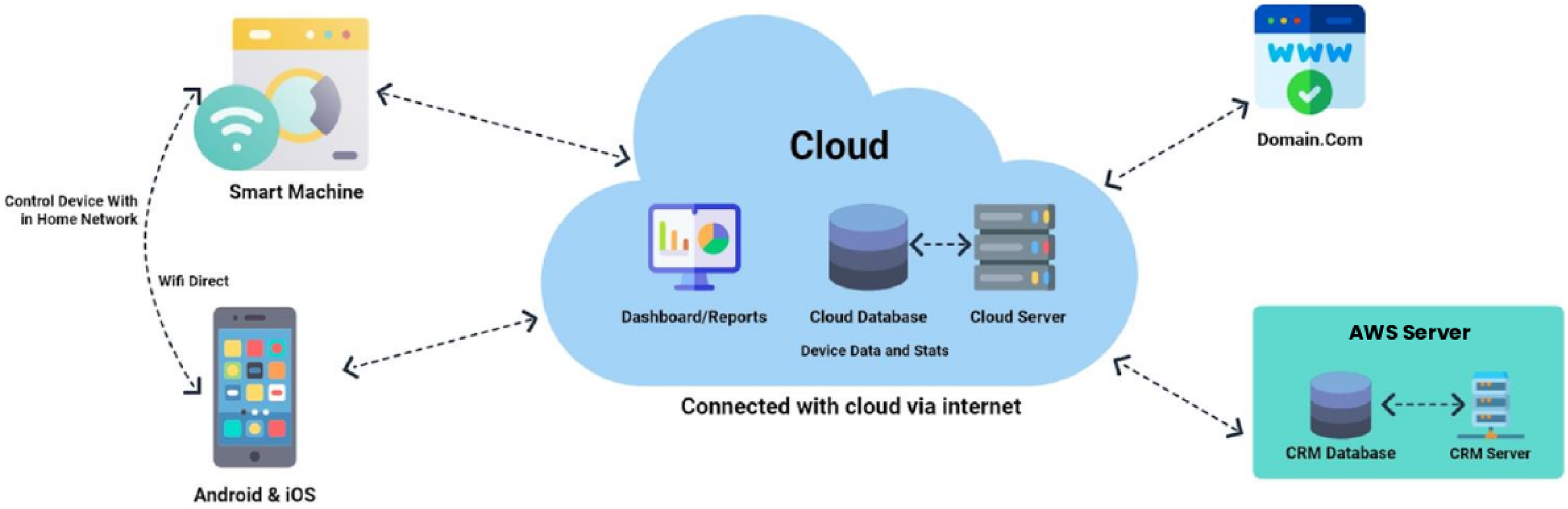
Product

+91 9755570042

info@digiprima.com

www.digiprima.com

Smart Washing Machine - System Architecture



DiGiPRIMA

Thankyou

We Look Forward To Working With You

 +91 9755570042

 info@digiprima.com

 www.digiprima.com