DMCIS

{DELHI MONSOON COMMAND & INTELLIGENCE SYSTEM}

THE HARDWARE

DMCIS – REAL-TIME FLOOD SENSING UNIT

HARDWARE OVERVIEW & PURPOSE

WHAT IT IS & WHY IT'S REQUIRED

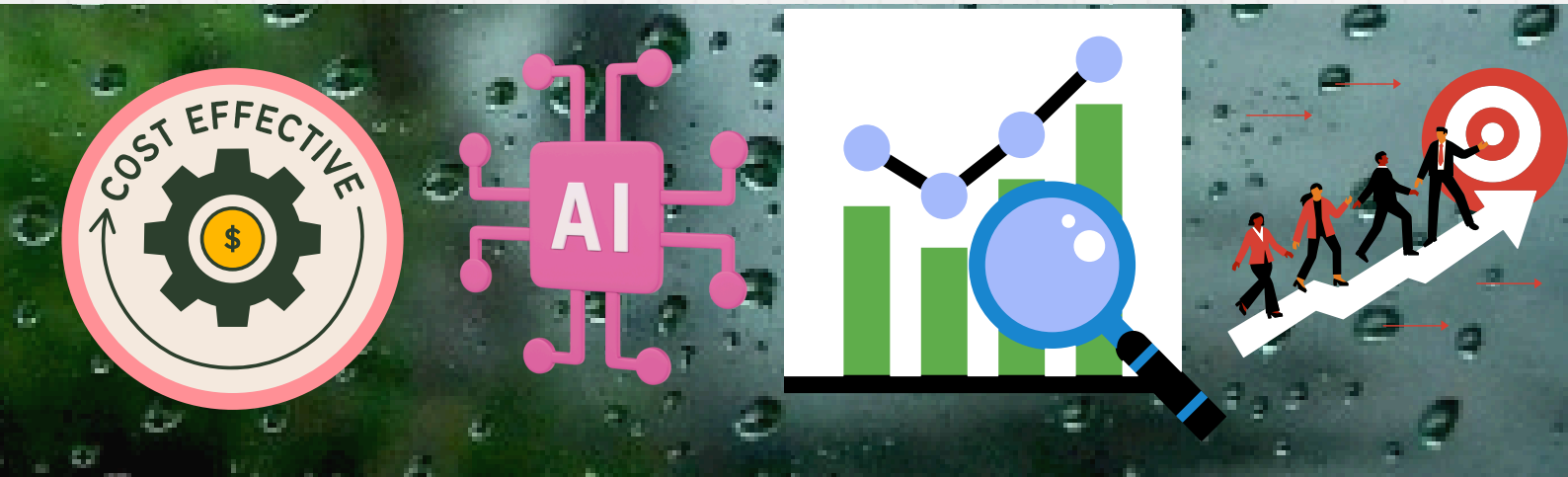
The Hardware Unit
Low-Cost IOT Sensing Unit for

Provides Critical Data For:

Role in Monson Flood Management

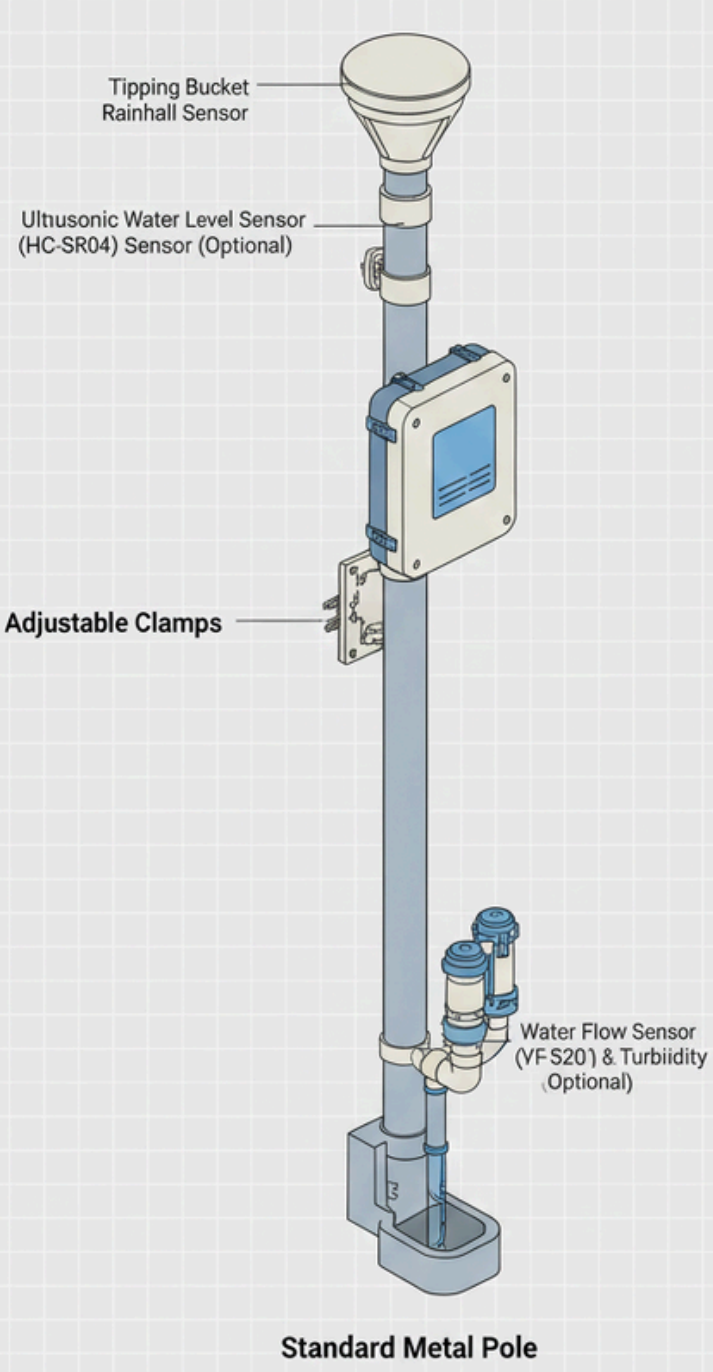
- Provides Critical Data For:
- Real-Time Monitoring,
- AI-Driven Risk Prediction.
- Proactive City Management

DMCIS Hardware: Shifting from Reactive to Predictive Flood Management

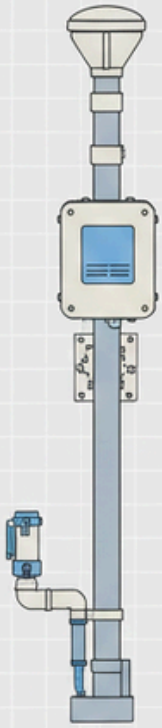


THE BLUEPRINT OF DCIMS HARDWARE

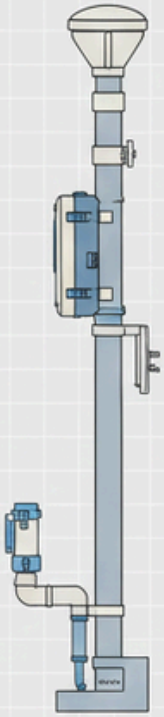
DMCIS HARDWARE SYSTEM - TECHNICAL BLUEPRINT



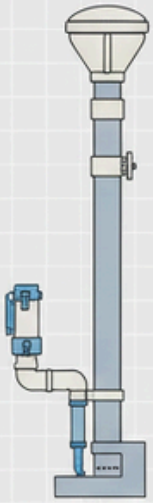
Standard Metal Pole



FRONT VIEW



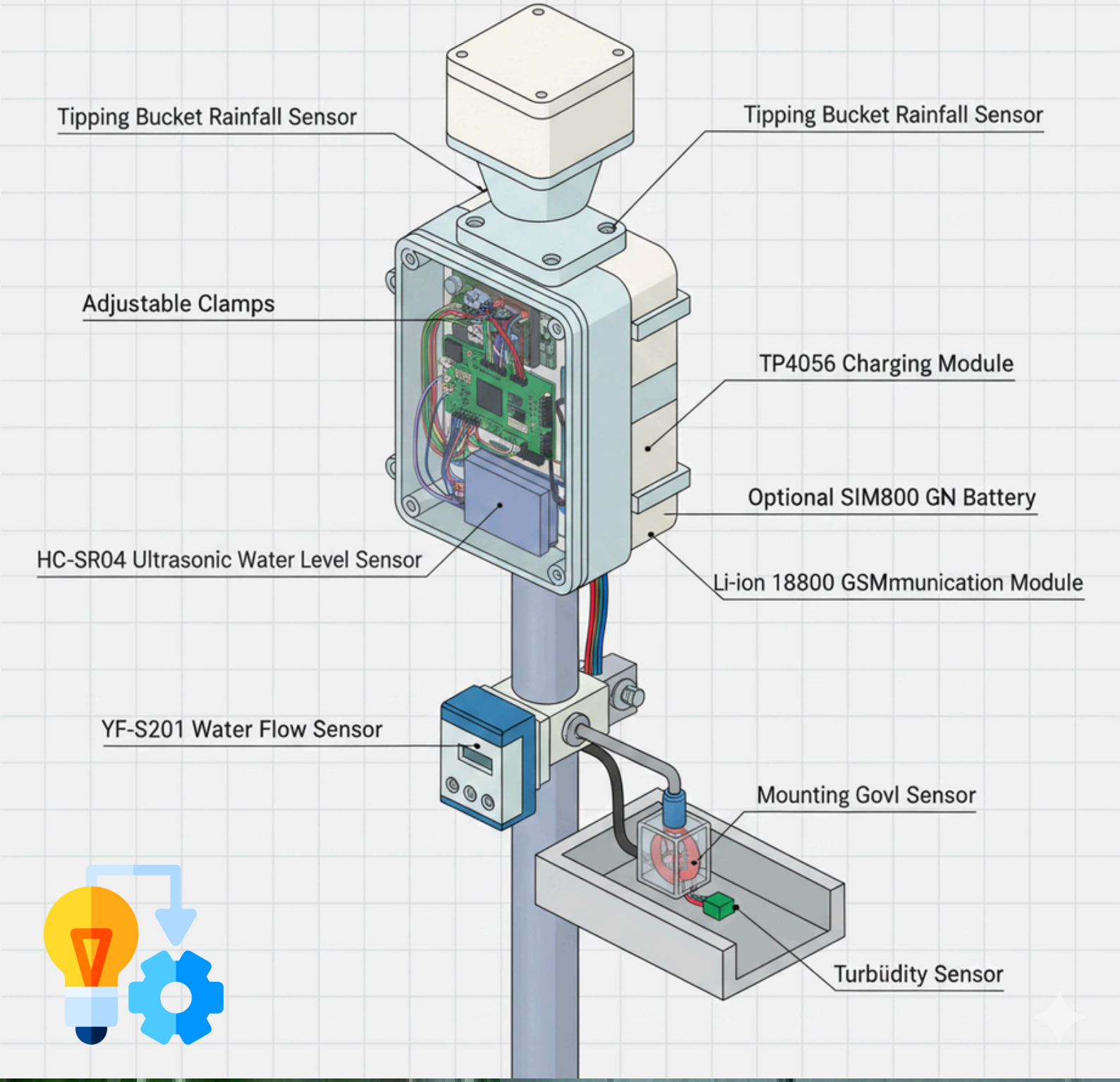
FRONT VIEW



LOTTOM VIEW

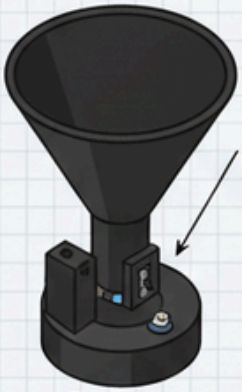
RIGHT VIEW

COMPONENTS
COMPELETE VIEW

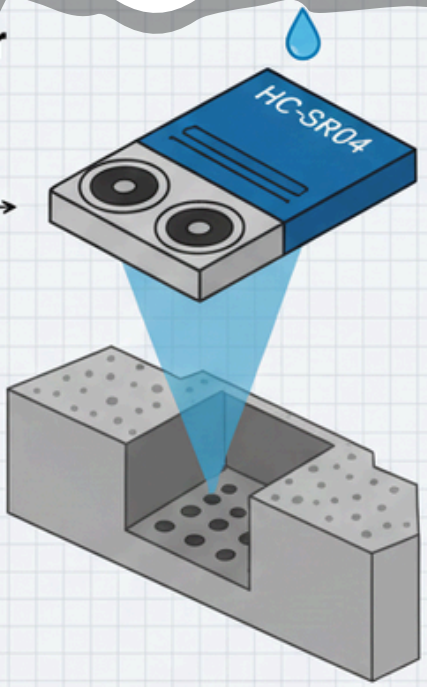


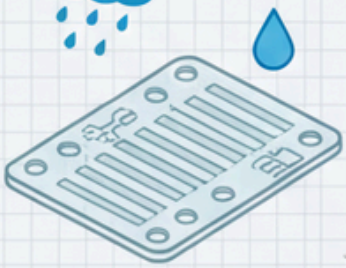
SENSOR & SENSING LAYER

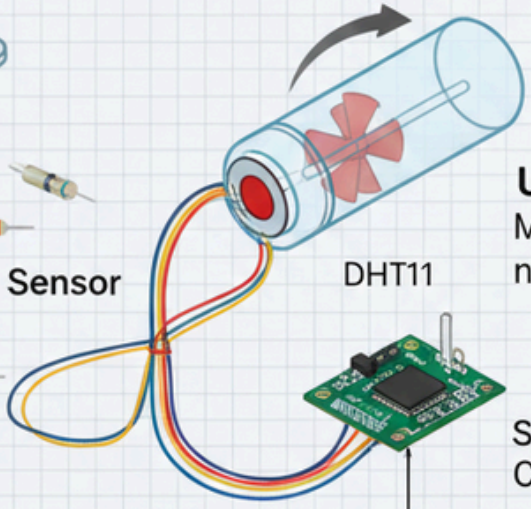
Sensor & Sensing Layer



Rainfall Sensor: Measures intensity.
Crucial for corrolating rain bursts
with suden water-logging







Capacative Rain Sensor

DHT11

Ultrasonic Water-Level Sensor:
Measures depth (roads/drains).
non-contact, acurate flooding data

Sensor Interface
Components

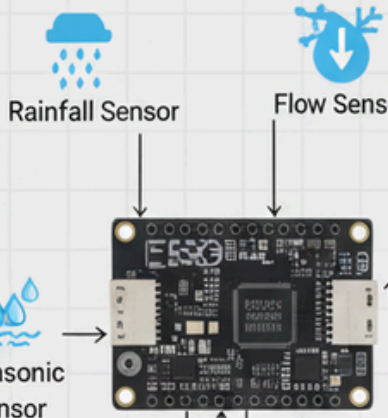
Water Flow Fonsor
Monitors drain flow rate.
Detects abrormal sloily/debris.
Identifies drain chocking.

YF-S201 Ultaonos (Optional)
Detects aborrmal slow flow
inciating choking/blockce

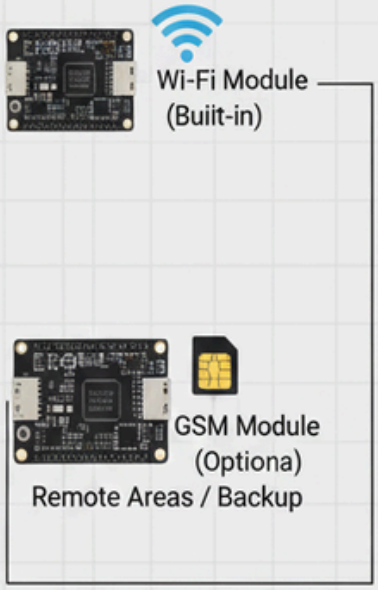
*Sensors work continuuols during monson events.

PROCESSING, POWER & COMMUNICATION

Processing & Control Core

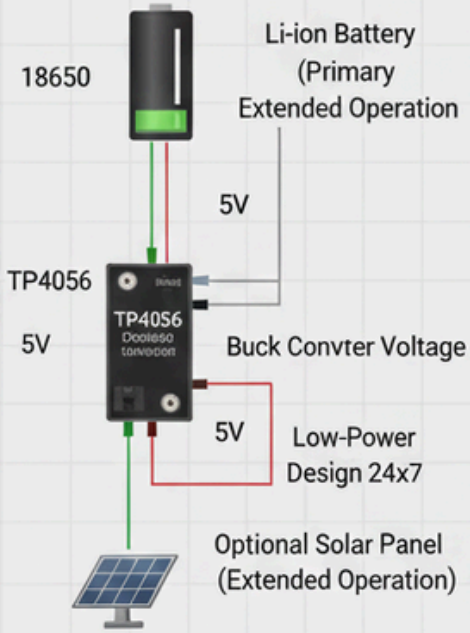


Communication Backbone



Ensuras Continuous Data Flow

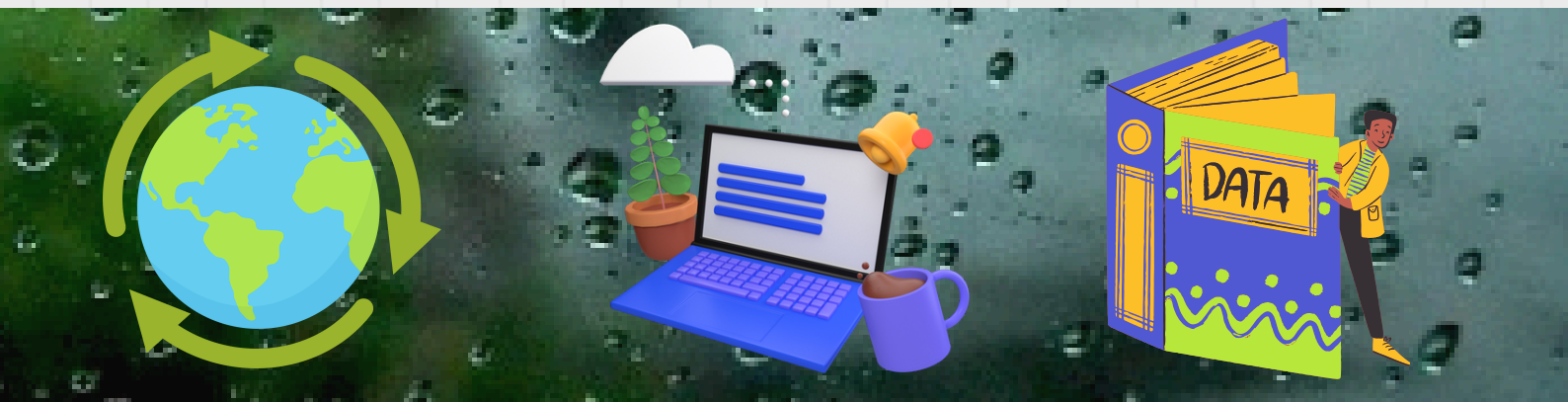
Power & Sustainability



Sensors → ESP32 (Processing) → Wi-Fi/GSM (Communication)

Battery + Power Modules → **Server/GIS Dashboard**

Battery + Power Modules → Keep System Alive



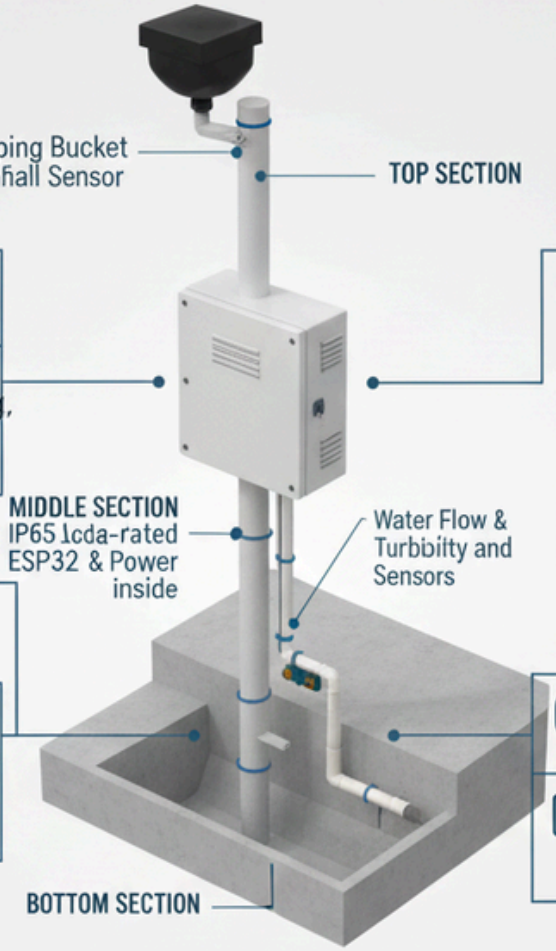
PHYSICAL STRUCTURE, INSTALLATION & SCALABILITY

1. Mechanical Structure & Design Philosophy

Rugged, Modular Pole-Mounted. Separates sening, electronics, power for durabiity & maintenance

2. Enclosure & Enviromental Protection

IP65 Waterproof.
UV-reistant.
Lockitell.
Electronics above flood level



4. Installation & Deployment

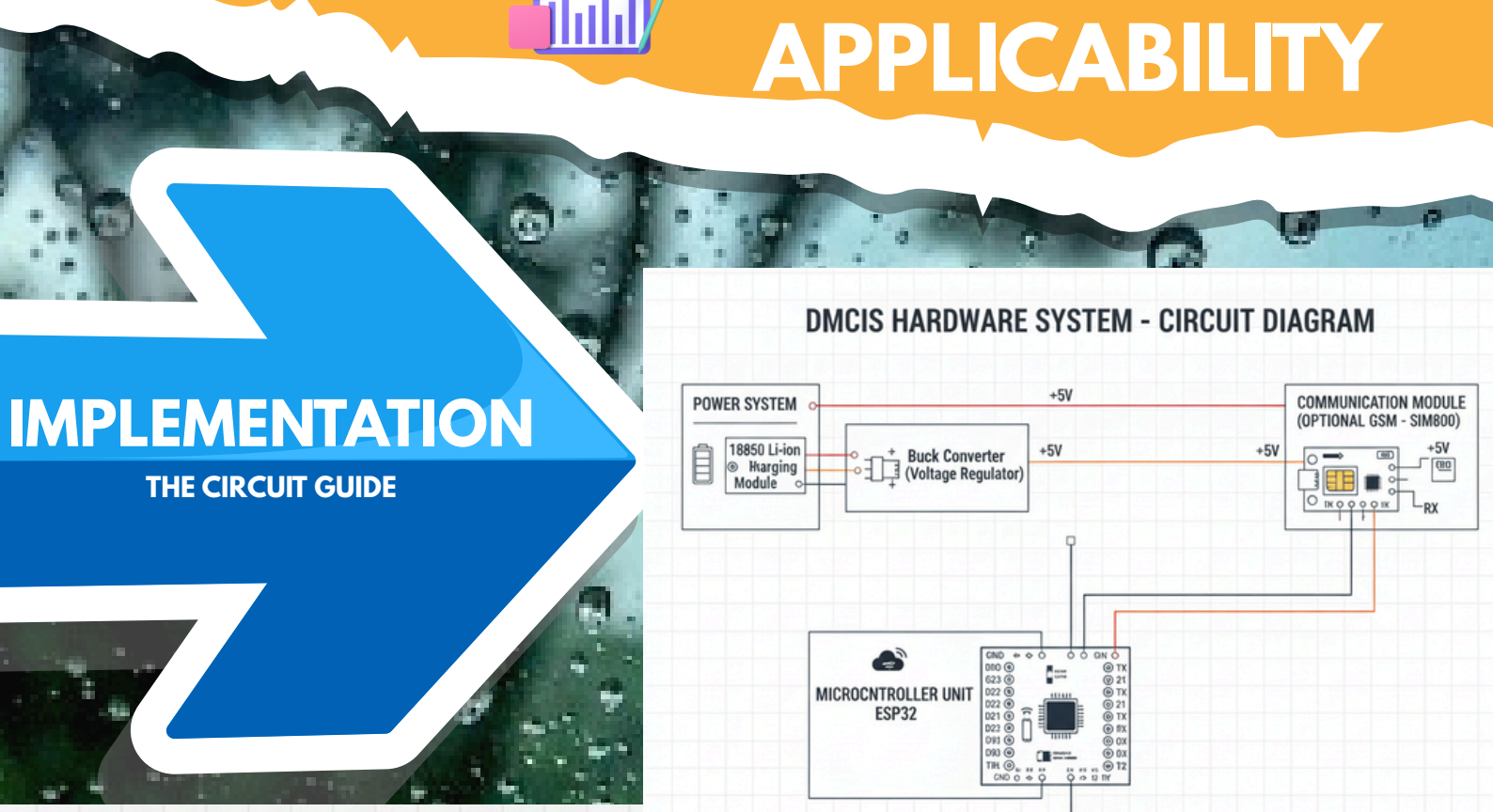
5. Scalability & Portabilte:
No civil work, underpases, low-lyyment & Relcation

6. Operational Advantages

Low Maintenance, Affordable, Predictive Flood Mgmt.
Reduces Traffic & Damage

INSTALLATION

IMPACT & APPLICABILITY



IMPLEMENTATION

THE CIRCUIT GUIDE

DMCIS HARDWARE SYSTEM - CIRCUIT DIAGRAM

1. Urban Water-Logging is Wirdseread

- 86% of Indians report water-logging.
- 94% of cities affected; 58% 'quite bad.'
- 83% in Delhi-NCR affected; 73% poor preparmess.

2. Why This Hardware Will Be Prevlent

Real Demand from Cities

- Productivity loss, traffic, financial loss (ec.)
- Delhl-NCR: 71% : Reactive; no real-time data

Value Proposition

- Real-time sensing Ward-level risk prediction
- Data for early action
- AI-driven insights

Fills urban administrator's gap

3. Estimated Benefiited Population

- ~86% urban population (direct) Commuters, Businеeey services (direct)
- Reduced traffic, economic loss, health incidents (indirect)

4. Rural Applicablity

- Addresses poor drainage, canal overlow
- Low-cost, low-maintenance, solar-ready. & disaster response

it's all about the IMPACT

BUSINESS & IMPACT ANALYSIS

Business & Profitability Analysis

- Market Scale: ~8,000 cities, thousands of units
- Profit per Unit ₹3,200–₹5,900
  Price: ₹8,100–: ₹8,000–₹12,800
- Existing electronics factories, assembl, calibrator
  calibration, field installation

Technical Performance Metrics

- **Battery Life**
  ~24–72 hours continuous, several days
  several days with optimization

Li-ion 18650 pack

Deployment & Utilization in Industry

- **Industrial Facilities**
  near rivers, site preparreses
- Tebee plan sbral Deployment
- Technician: ₹500–1,200
  Calibration: ₹300–800

Water-Logging in Delhi & India (Stats)

- **India**
  ~86% report waterloging
  ~94?.8 affected
  producivity losses
- **Delhi / NCR**
  ~83% resdss affected
  producivity losses

Root Causes & How DMCIS Counteracts Them

- Poor drsons for Waterenance, concretization
- blocked drains, blocked wrains, lack of data
- ward-level risk scores

Summary

- Addresses natiowide pain point (86%)
- Relevant in Delhi (80%)
- Urban & rural deplopanent
- Uses existing manufacturing
- Reduces economic/social losses

COST ANALYSIS OF ELECTRIC COMPONENTS

BY 2025 INDIAN MARKET PRICE

WHY THIS IS CONSIDERED "LOW-COST"

COMPARABLE COMMERCIAL FLOOD SENSORS COST ₹25,000 – ₹1,50,000 PER UNIT
DMCIS HARDWARE IS ~10× CHEAPER
DESIGNED FOR MASS WARD-LEVEL DEPLOYMENT
SOFTWARE INTELLIGENCE COMPENSATES FOR REDUCED HARDWARE COST

DMCIS LOW-COST HARDWARE - DETAILED COST ANALYSIS (PER UNIT)

BASE HARDWARE COST (Wi-Fi Only)

1. Rainlfall Sensor Ultarsnic Water Level Sensor (Avg: ₹150) (Avg: ₹150)
2. Microccrtlolor (Avg: ₹300)
4. Water Flow Sensor (Avg: ₹300)

Avg: ₹600

Communication (Wi-Fi – Included) Cost: ₹0

6. Power System
   - TP4056 Charger ₹0
   - Li-ion Battery: TP4056 Charger ₹1000 ₹100
   - Buck ₹100
7. Weather-Resistant Enclosure
   - Mounting Structure (Avg: ₹400)
   - PCB/Breadboard (Subotal: ₹330)
   - Wires/Connectors (100!)
   - Cable Glands
   - LEDS: 50

TOTAL BASE HARDWARE (Without GSM: ₹3,200 – 3,500 (Avg: 3,380)

GSM UPGRADE COST (Optional)

Optional GSM Module (Avg: ₹,000)

ADD GSM

TOTAL HARDWARE (SIM800)

TOTAL HARDWARE (With GSM):