



**GadgEon**

Engineering Smartness

# SMART WATER METER



## Smart Water Meter



Company needed to build complete solution for the homeowner to control the water inlet, leak detection and remote valve control

### Results / Outcomes

- Used Off the shelf components to realize the Gateway – Link7688
- Silabs MCU EM358x used for end node realization
- Cloud and Mobile App implementation for the watermeter solution



## System Description

### Protocols Used :

Thread, MQTT, 6LowPan

### Challenge

- The water meter provides monitoring of the primary inlet
- Interoperate with thread devices and Nest ecosystem

### Linux Gateway

- Off-the-shelf Hardware (beaglebone Black) was used with the Linux application(cpp), Silicon labs radio chip for Thread protocol, MQTT to connect to the server.

### Cloud server

- Express framework based node.js REST API server, AWS RDS database, MongoDB and AWS S3 for storage, sms notifications using Twilio server, push notifications via Google Cloud Messaging and Apple Push Notification Service, eMail using SMTP server.
- AWS platform for hosting the cloud server:
- Mosquito MQTT broker

### Mobile App Design and Development

- MVC architecture, encrypted databases, realtime notifications using
- MQTT & GCM, REST API based alert generation, Followed the recommended design patterns from Apple and Google.



# System Description

## Architecture for Complete System

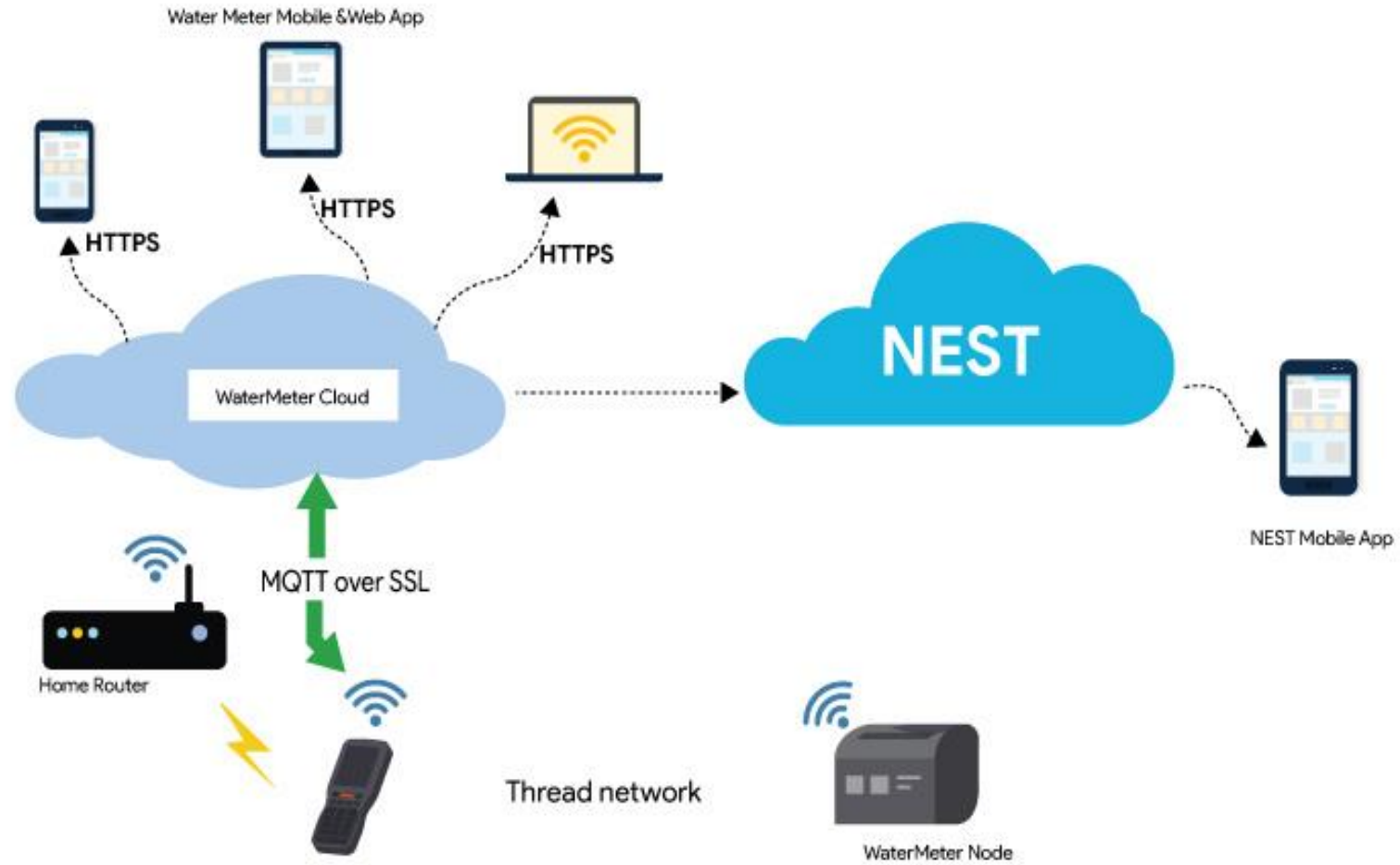
- Requirements Gathering & Analysis, Uses cases, Architecture development, identification of functional components.

## Hardware Design, Prototyping, Boardbring up

- Cadence allegro, optimized for battery powered operation



# Water Meter – Data Flow Diagram



# THANK YOU



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