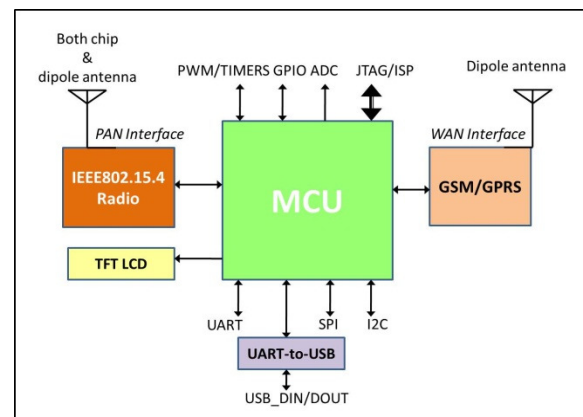


Dwara™ is Indrion gateway platform for converging all or any low range personal area networks (PAN) to wide area networks (WAN) leading to ambient intelligence based wireless sensor network applications/controls outdoor.

Features

- Traffic convergence from IEEE802.15.4 ZigBee to GSM/GPRS mobile network & vice versa
- Data acquisition, configuring, debugging, on-chip serial port access from PC and many more simply via on-board USB interface
- Support for embedded Free RTOS
- Supports 6LoWPAN stack
- Supports serial AT-command based GSM/GPRS configuration
- Tool chain supported are ARMGCC
- On-board TFT display available
- Ability to work as router in mapping Sensor Network to WAN
- Ability to administer activity of wireless personal area networks
- Ability to indigenously manage localized sensor & actuator networks

Block Diagram



Target Applications

- As gateways in
 - ✓ community water management systems
 - ✓ weather based irrigation systems
 - ✓ structural health monitoring
 - ✓ remote surveillance systems
 - ✓ Smart homes & offices

Highlights

This Dwara™ platform (DP) embarks as one of the few wireless sensor network (WSN) platforms to build real world, low cost, self sustaining sensor network applications and solutions.

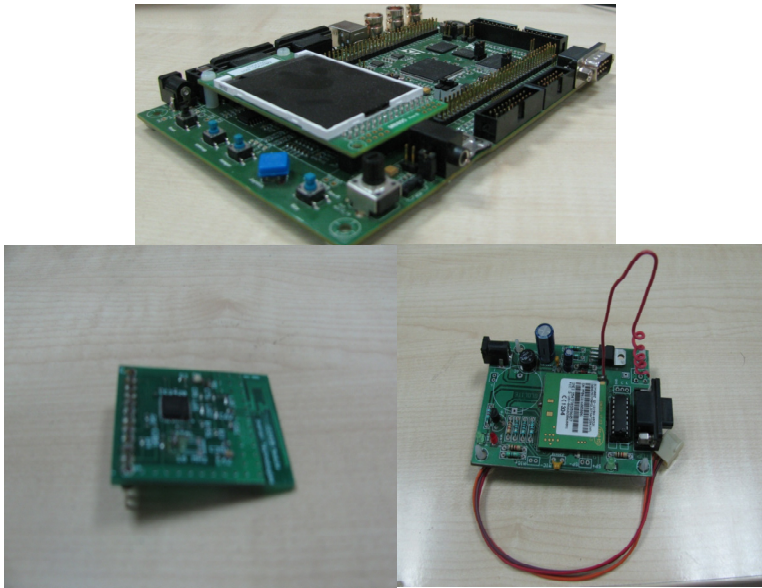
The hardware architecture of Dwara is thoughtfully planned & built with processor, interfaces options, memory footprint, user controls all suiting to build a complete & sustainable ecosystem for WSN. It's consistency with all wireless sensor motes in Indrion's development platform (IDP) necessitates fast & easy development of a complete WSN ecosystem based on wireless ambient intelligence.

The heart of the DP is the ARM MCU core *STM32*. This is a 32-bit core computing unit with 128 KB in-system programmable flash while the personal area based sensor network interface on one side comes with low-power IEEE 802.15.4 Zigbee radio chip *CC2520* and WAN interface is provided by integrated GSM/GPRS modem *SIMCOM* on other side.

Table 1: Summary of characteristics – Dwara™ STM32 ARM based gateway platform

Component Characteristics	Specifications	Comments
Microcontroller	STM32	
Performance	MIPS throughput	
In-system programmable Flash Memory	KB	
RAM	KB	
Configuration EEPROM	KB	
Operating Voltage	V to V	
Current consumed	mA mA	

Component Characteristics	Specifications	Comments
Programming Interfaces	ISP & JTAG	
PAN Transceiver		Part # CC2520
Radio Protocol	IEEE 802.15.4 Compatible	
Operating Frequency Band	ISM 2.4GHz	
Data rate	upto 250 Kbps	
Current consumed	18.5 mA (Rx) 33.6 mA (Tx)	
Receiver sensitivity	-98	In dBm (1% packet error rate)
Supported network topologies	Point-to-point, Point-to-multipoint, Peer-to-peer & Mesh	
Outdoor range	75~100 meters	
Indoor range	20~30 meters	
WAN Transceiver		Part # SIMCOM 300Z
Radio Protocol	Tri-band GSM/GPRS	
Operating frequency range	EGSM 900 MHz, DCS 1800 MHz and PCS 1900 MHz	
Data rate	56-114 Kbit/second	
Operating voltage	3.4 to 4.5 V	
Software		
Embedded OS	Free RTOS	
Protocol stacks supported	6LoWPAN (WPAN) AT-command Set (WAN)	
Tool chain	IAR/ARM GCC	
Others		
PC Interface	via UART -to- USB	
User Interface	TFT display	



Snapshot of Zigbee to GSM/GPRS gateway for WSN

Programmers & debuggers supported

Are available as a separate module on request. Contact Indrion for the same.