IOT Controller ADK

OVERVIEW

GainSpan IOT Controller ADK serves as an "ALWAYS ON" gateway software to bridge low power Wi-Fi embedded devices, smartphone and the cloud.

Key advantages for the IOT Controller ADK include:

- IOT Controller ADK enables the lowest system power consumption for sleepy devices.

- Enhances the user experience by serving as a bridge between multiple sensor /embedded devices, smartphone and the cloud.

- Aggregates data to the cloud simplifying the interface to cloud services.

- Works seamlessly with existing access points / gateways in the home.

- IOT Controller can be ported on Android gateways; routers / access points; PCs or tablets.

- Reference implementation enabling fast time-to-market for customers.

REFERENCE IMPLEMENTATION

Version 1.0 of the reference implementation interfaces with GainSpan GS2000 TLS ADK using the API's exposed by the ADK. The implementation features zero configuration service discovery enabling easy setup and configuration.

The IOT Controller software uses the Restlet framework and is implemented in a Java2 Standard Edition runtime environment on PC / Android platforms.

The ADK also includes mobile apps allowing the user to monitor the devices connected to the gateway, manage the user accounts, and perform other administration functions.

KEY COMPONENTS

The key software components include:

- IOT Controller / Gateway software

- GS2000 embedded software / API

- Dashboard administration app

- Device monitoring app

IOT CONTROLLER SOFTWARE

- Java2 SE Runtime environment on PC and Android Tablets

- HTTP & CoAP API for embedded devices

- Advertises services via mDNS / DNS-SD

- Pluggable cloud adapters for secure communication with the cloud and data aggregation

- Smartphone / mobile facing APIs

- Embedded facing APIs – HTTP / CoAP API

- Software components include
  - HTTP Server
  - HTTP Client
  - CoAP Server
  - mDNS Resolver / Responder
  - Database

GS2000 EMBEDDED SOFTWARE

- Discovery of IOT Controller

- Wakes up at periodic intervals to update data and retrieve configuration from IOT Controller

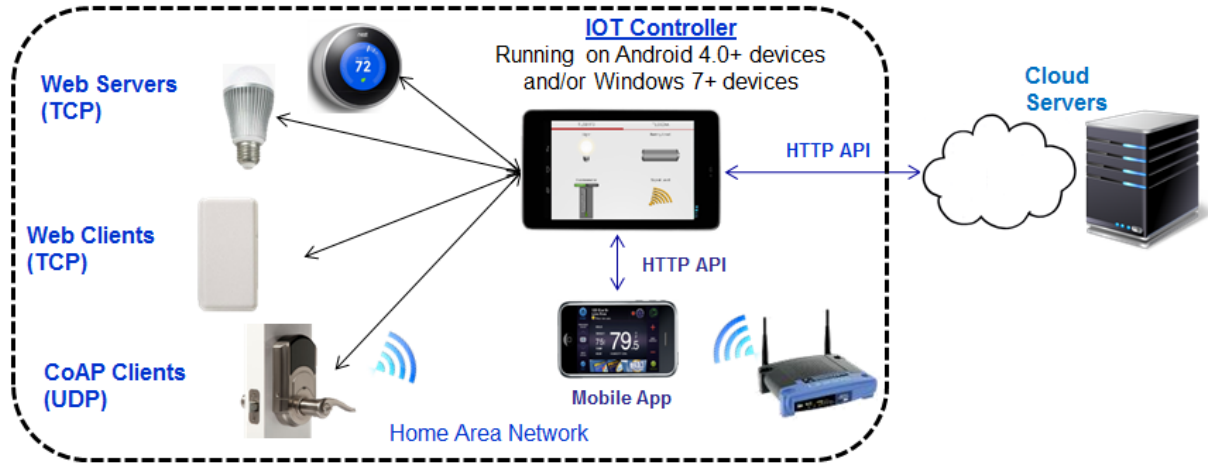## DASHBOARD ADMINISTRATION APP

- Manage the user accounts on the gateway

- Monitor the connected cloud plug-ins

- Perform administration functions

DEVICE MONITORING APP

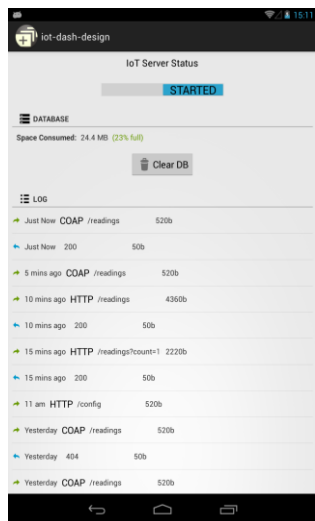- Monitor the devices connected to the IOT Controller

SYSTEM DIAGRAM

Below system diagram shows the interaction between IOT Controller software, GS2000 based embedded devices, mobile apps and cloud servers.

DASHBOARD ADMIN APP

Dashboard admin app allows easy administration of devices connected to the IOT Controller and connectivity to the cloud.

DEVICE MONITORING APP

Device monitoring app allows easy monitoring of various embedded devices / sensors connected to the IOT Controller.

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