

Project Requirements

- Smart HVAC zoning system that communicates wirelessly with HVAC equipment, thermostats, and zone dampers.
- To regulate the airflow through **smart damper control** and enable optimal temperature in each room/ zone as per the respective preset & ambient temperature
- To increase user comfort & system efficiency

Thingularity Solution

- System architecture design, Hardware Design (PCB Layout, Signal Integrity, EMI/ EMC and Thermal Analysis) and Firmware development
- Zigbee & Wi-Fi based communication development
- Cloud enablement, Web App and Mobile App development
- Embedded AES-256/128 Hardware Crypto along with implementation of security for cloud, internet connectivity and app modules
- Prototype Development
- Integration & testing with the HVAC system
- Over the Air upgrade capability



Solution Features

- Regulates airflow through **smart damper control** and enables optimal temperature in each room/ zone as per the respective preset & ambient temperature
- Wirelessly Controls & Triggers HVAC system & Dampers by sensing Temperature, Occupancy & IAQ
- Gathers data from Compressor, Motor, Vents, Dampers, Thermostat, & Sensors
- Mobile/ Web app for user to control system
- Remote admin dashboard to allow for better troubleshooting by tech support
- Analytics to increase efficiency, optimize zoning control and for predictive maintenance
- Provides unit level data for energy consumption pattern time of Usage for utilities “demand response” programs

Customer & User Benefits

- Easy to install and operate
- Smart Zoning + Analytics for high energy efficiency & optimal user comfort
- Occupancy based optimization of energy consumption
- Air quality monitoring and control
- Improved warranty management and efficient AMC
- Over The Air (OTA) Upgrades
- Optimal inventory management for spare parts