



Statistics

M2M connections in millions



Source:www.statista.com

Statistics

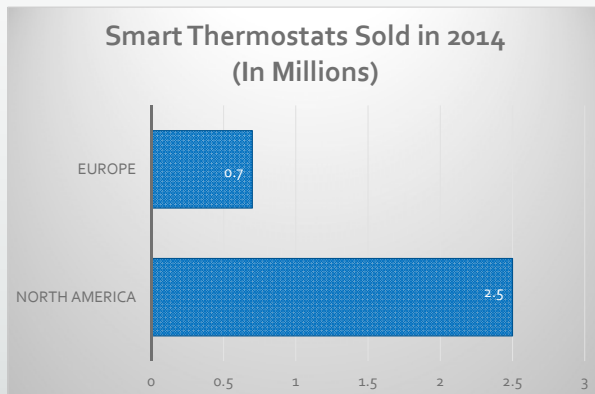
Smart Appliances market share by region



Source: www.statista.com

Statistics

Smart Thermostats Sold in 2014
(In Millions)



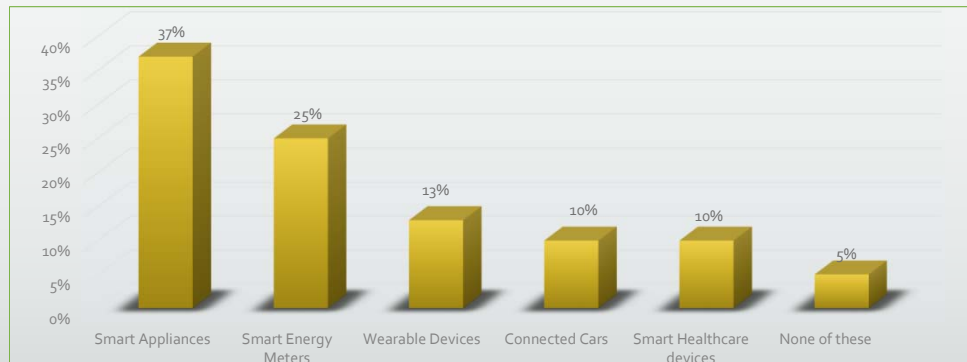
Source: <http://www.achrnews.com/>

Demand for Smart Thermostats is currently strongest in North America with 70% global market share.

Source: <https://iot-analytics.com>

Statistics

Connected Devices to be used next 5 years



Source: www.statista.com

Scale Types

Type	Restrictions	Scale Items	Data Type	Usage
Rating Scales				
Simple Category Scale	Needs Mutually exclusive choices	One or more	Nominal	Do you have IoT enabled HVAC system/application (Yes / No)
Multiple Choice Single-Response Scale	Needs mutually exclusive choices; may use exhaustive list or "other"	Many	Nominal	List with radio buttons and drop down questions
Multiple Choice Multiple-Response Scale (Checklist)	Needs mutually exclusive choices; may use exhaustive list or "other"	Many	Nominal	Checklist
Likert-type Scale	Needs definitive positive or negative statements with which to agree/disagree	One or more	Ordinal or interval	Are IoT systems energy-efficient (Strongly Agree to Strongly Disagree)

Questionnaire

1. Is your company researching, designing, testing, or producing HVAC products with Internet of Things(IoT) integration?

Yes

No

2. Does your company currently sell HVAC products that utilize IoT integration?

Yes

No

Questionnaire (Continued)

3. On a scale of 1-5, how important do you believe HVAC technology with IoT integration to be to your company's business strategy in the next 5 years?

0 5

A horizontal scale from 0 to 5. The number 0 is at the left end and 5 is at the right end. A slider bar is positioned below the scale, starting at 0 and extending to approximately 1.5. To the right of the slider bar is a small square input box.

Questionnaire (Continued)

4. Select for which reasons you think that integration of IoT into HVAC technology is important. (Select all that apply.)

- Energy Efficiency
- Usage information data collection for manufacturers
- Usage information data collection for consumers
- Remote control using a smart phone or tablet
- Remote monitoring of system status for customer
- Remote monitoring of system status for producer of technology
- Remote monitoring of system status for third party (ie utility company)
- Other (please specify)

Questionnaire (Continued)

5. On a scale of 0 to 10, with 0 being not at all and 10 being critical can IoT integration contribute to making HVAC systems more energy efficient?

0 10

6. What uses do you see for HVAC technology with IoT integration right now?

Questionnaire (Continued)

7. What uses do you see for HVAC technology with IoT integration in the next 5 years?

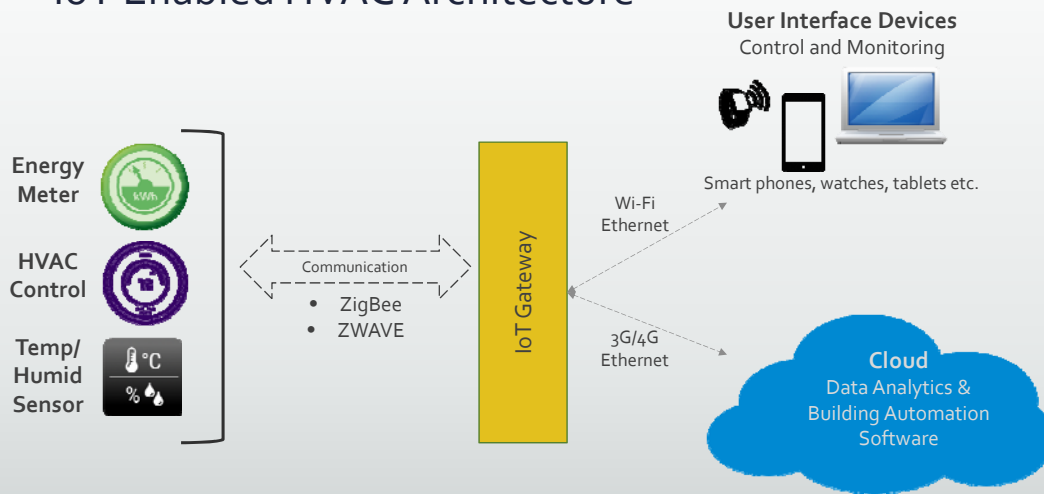
Questionnaire Preview Link:

https://www.surveymonkey.com/r/Preview/?sm=mQtlxe_2FreG6LBdkZy3S5lDSB5_2B8ck9Fs_2AA4QLT3QQoJYL3jND7yFLoGRVocRa5o

Measurement

- **Variables**
 - Object
 - Smart Thermostat brands
 - IoT enabled HVAC applications
 - Properties
 - Usefulness of IoT applications
- **Measurement Scale**
 - Nominal & Ordinal

IoT Enabled HVAC Architecture



References

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