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| Re: |  |
| Abstract | This contribution proposes the corrections of semantics and examples for representing environmental sensor information in the physical world in a standardized data format. |
| Purpose | To start discussion on purpose of the standard |
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# Data formats for environmental sensors

## Ambient light sensor

### Semantics

The semantics of the lightSensorData:

| *Name* | *Definition* |
| --- | --- |
| lightSensorData | Provides a structure for describing sensor data aquired by a light sensor. |
| intensity | Describes the intensity of the light with the unit defined in the unit attribute. This attribute can be used to represent “White” when the light sensor senses “RGBW”. |
| unit | Specifies the unit of the value as a reference to a term that shall be using the unitType. |
| color | Describes the list of colors which the light sensor can sense either as a reference to a term that shall be using the colorType. |
| colorWType | Provides a structure for describing a color in 1 byte (256 level) value of White. |
| colorValue | Describes the values of a color sensor with color space models. |
| model | Describes the color model of the values from a color sensor using colorSpaceType.  |
| colorValueType | Describes three values from a color sensor. The meaning of the three values is determined by the color space model. EXAMPLE The color model *CIEXYZ* would have three values of *X*, *Y*, and *Z* in order. |
| colorSpaceType | The color space models utilized by a color sensor are *Yxy*, *CIEXYZ*, *CIELAB*, *CIELCH*, *CIELUV*, and *Hunter Lab*.  |

### Examples

The light sensor detected 200 lux of light. Colors represent blue with 0.14, 0.8, and 0.78 in the CIE XYZ color space.

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| { “sensorDataBaseAttributes”:{}, “lightSensorType”: {“value”: [200],“unit”: “lux”,“colorValue”: [0.14, 0.8, 0.78],“model”: “XYZ”}} |

## Ambient noise sensor

### Semantics

Semantics of the ambientNoiseSensorData:

| *Name* | *Definition* |
| --- | --- |
| ambientNoiseSensorData | Provides a structure for describing sensor data aquired by an ambient noise sensor. |
| lifespan | Describes the duration taken to measure the information based on the timestamp. The unit of lifespan is the internal clock count. |
| intensity | Describes the sensed value of the ambient noise with the decibel (dB). |

### Examples

The ambient noise intensity is measured every 100 ticks of the clock in the ambient noise sensor. The ambient noise measured is 10 decibels.

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| {“sensedInfoBaseAttributes”:{},“ambientNoiseSensorType”: { “lifespan”: 100, “value”: 10,}} |

## Temperature sensor

### Semantics

Semantics of the temeratureSensorData:

| *Name* | *Definition* |
| --- | --- |
| temperatureSensorData | Provides a structure for describing sensor data aquired by a temperature sensor. |
| temperature | Describes the temperature with the unit defined in the unit attribute. |
| unit | Specifies the unit of the temperature as a reference to a term that shall be using the unitType. |

### Examples

The measured temperature is 36.5 C˚.

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| {“sensedInfoBaseAttributes”:{},“temperatureSensorType”: { “value”: 36.5, “unit”: “celsius”}} |

### Semantics

The semantics of the humiditySensorData:

| *Name* | *Definition* |
| --- | --- |
| humiditySensorData | Provides a structure for describing sensor data aquired by a humidity sensor. |
| humidity | Describes the value sensed by the humidity sensor with a percentage (%). |

### Examples

The humidity measured was 60%.

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| {“sensedInfoBaseAttributes”: {},“humiditySensorData”: { “humidity”: 60,}} |

## Wind sensor

### Semantics

The semantics of the windSensorData:

| *Name* | *Definition* |
| --- | --- |
| windSensorData | Provides a structure for describing sensor data aquired by a wind sensor. |
| velocity | Describes the speed and direction of a wind flow with the unit defined in the unit attribute. Values represent the wind speeds from the x, y, and z directions, respectively.  |
| unit | Specifies the unit of the sensed value as a reference to a term that shall be using the unitType.  |

### Examples

In this example, the velocities of wind measured were 1m/s from x-direction, 0.7m/s from y-direction, and 3.5m/s from z-direction.

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| {“sensedInfoBaseAttributes”: {},“windSensorType”: { “velocity”: [1, 0.7, 3.5] “unit”: “meterpersec”}} |

## Gas sensor

### Semantics

The semantics of the gasSensorData:

| *Name* | *Definition* |
| --- | --- |
| gasSensorData | Provides a structure for describing sensor data aquired by a gas sensor. |
| gasType | Specifies the type of gas as a reference to a term provided by gasType. |
| value | Describes the sensed gas concentration value by the gas sensor with the unit defined in the unit attribute. |
| unit | Specifies the unit of the sensed value as a reference to a term provided by unitType. |

### Examples

In this example, the gas sensor measured 100ppm of methane.

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| {“sensedInfoBaseAttributes”: {},“gasSensorType”: { “gasType”: “methane”, “value”: 100, “unit”: “ppm”}} |

## Dust sensor

### Semantics

The semantics of the dustSensorData:

| *Name* | *Definition* |
| --- | --- |
| dustSensorData | Provides a structure for describing sensor data aquired by a dust sensor. |
| value | Describes the dust concentration value by the dust check with the unit defined in the unit attribute. |
| unit | Specifies the unit of the value as a reference to a term provided by unitType. |

### Examples

The dust concentration value measured was 100 microgram per cubic meter.

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| {“sensedInfoBaseAttributes”: {},“dustSensorType”: { “value”: 100, “unit”: “microgpcm”}} |