Management of Security Devices

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Contents

I. Introduction (1/2)

Motivation: Format for managing &sensing Security Devices in 3D environment

- **Applications of X3D**
  - – CAD
  - - GIS, Earth
  - - Medicine
  - - E-Learning
  - - Management of Security Devices

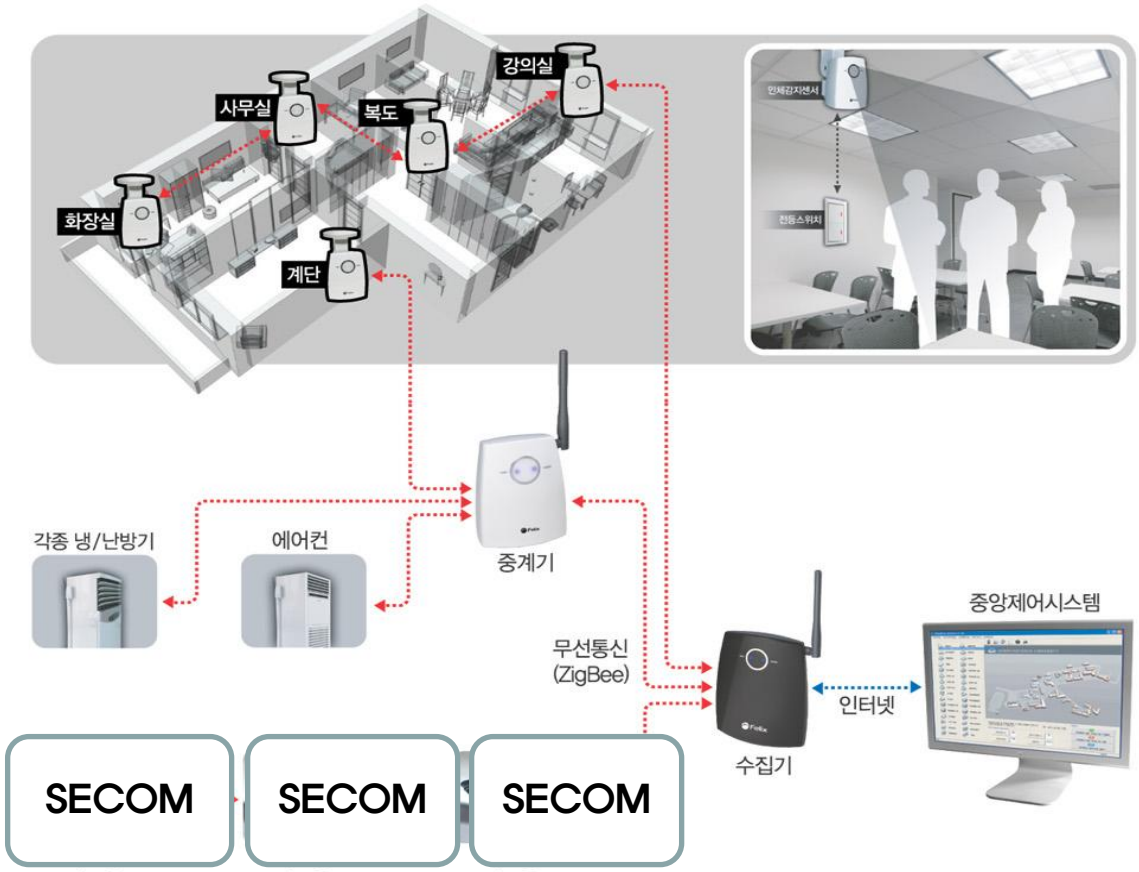
- **Requirement of visualization of security devices such as SECOM, CAPS, ADT, etc in a 3D space in 3D environment**

- **Monitoring of security device' state information in 3D environment: sensor value, status, location, GPS**

- **Emulation & Simulation of working state of security devices in 3D environment**

I. Introduction (2/2)

Security Devices Management System in 3D Environment



Monitoring &Sensing

- Security Devices Working Status Monitoring in Office or House represented as 3D

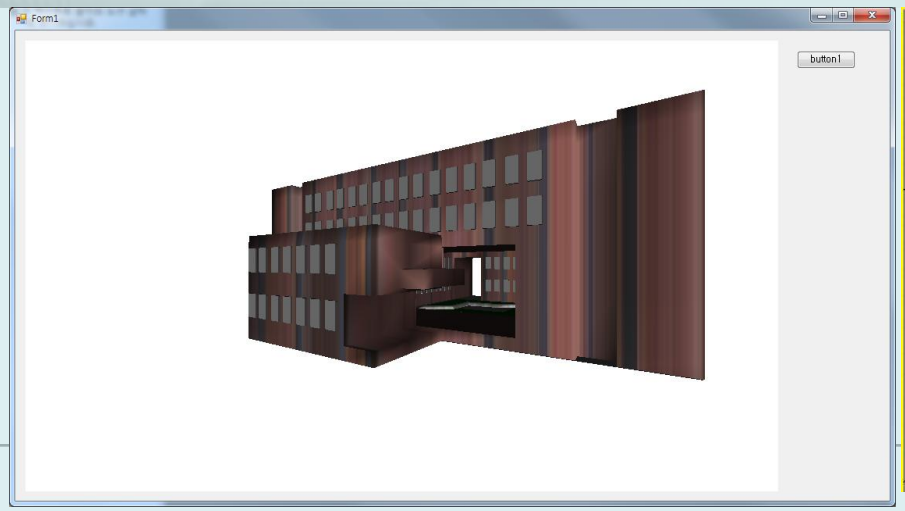
Remote Control

- Control Security devices

Scheduling

- Working scheduling of the security devices

3D Building Model, X3D



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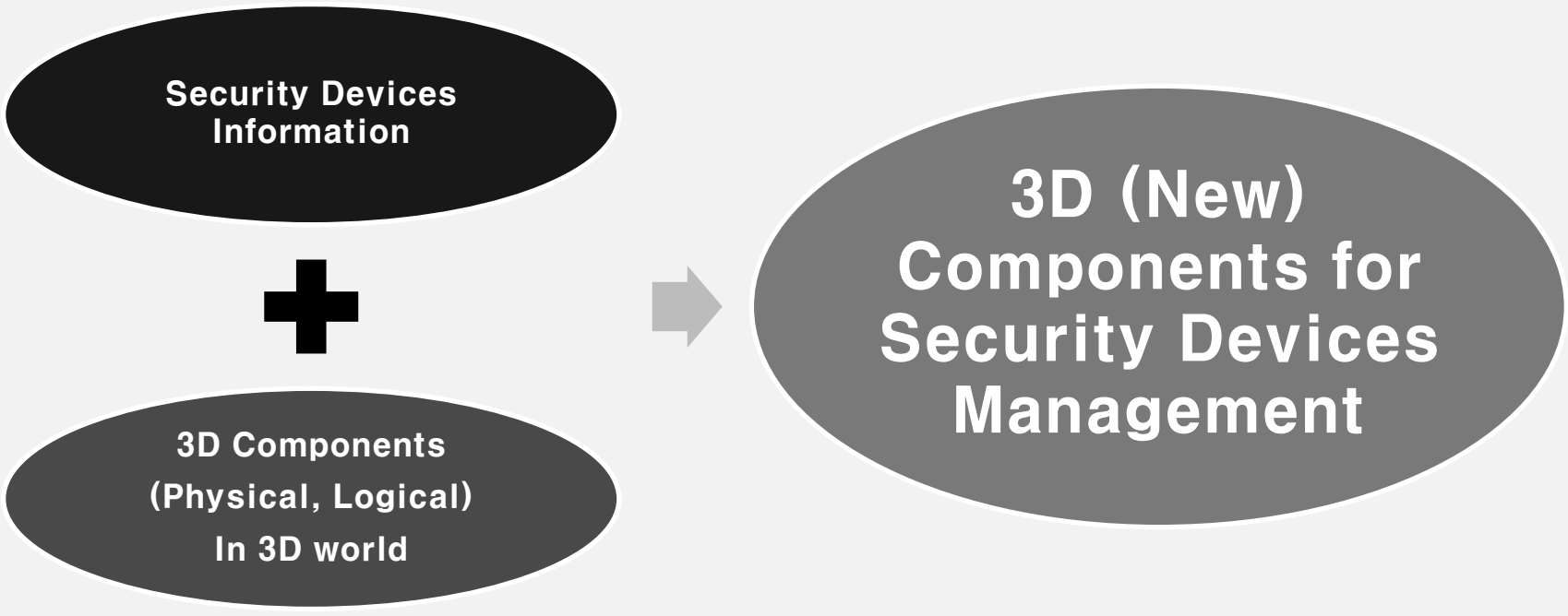
Demo

II. Standardization Items for 3D SDMS

Standardization



II. Standardization Items for 3D SDMS

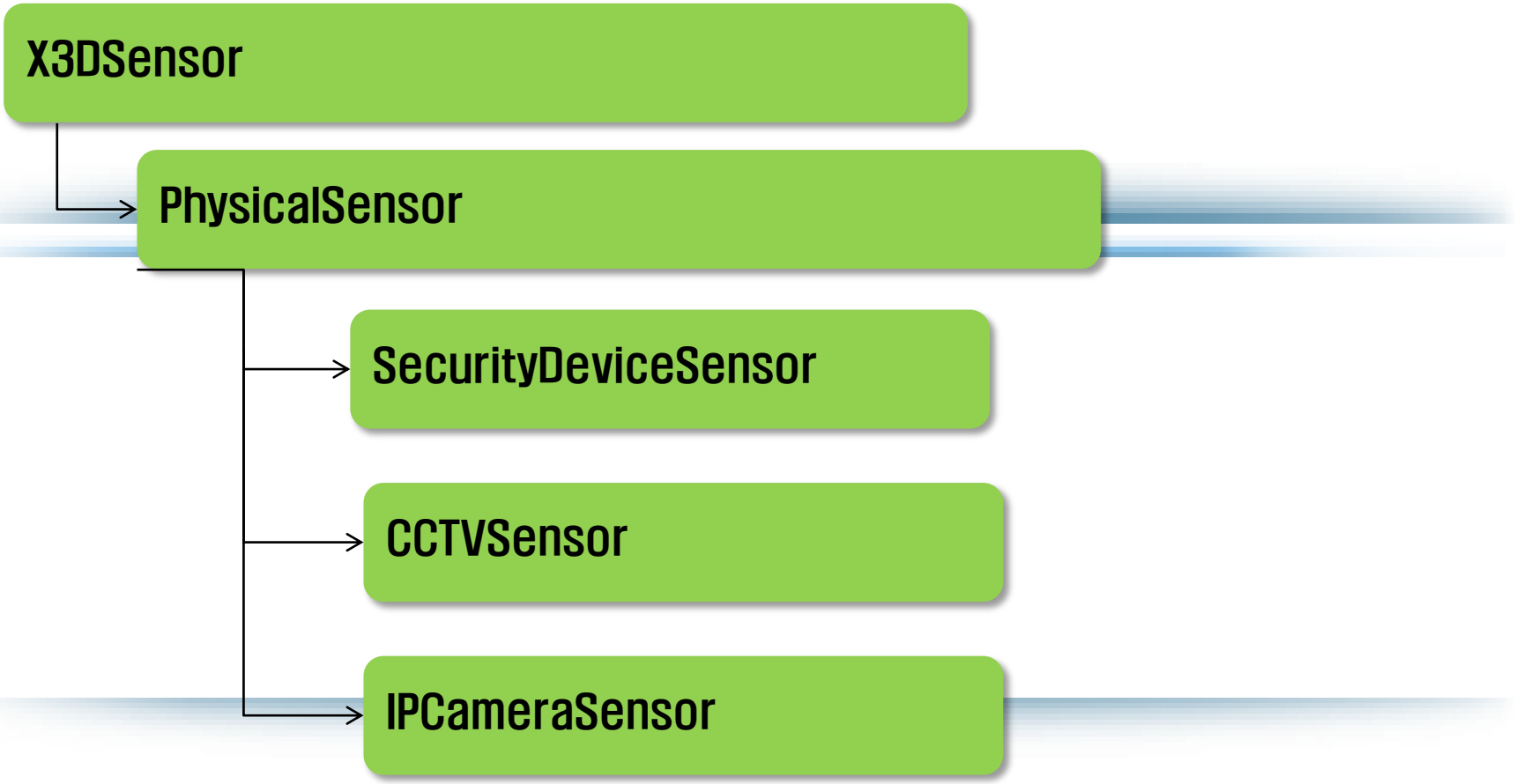
Modeling & Locating Security Devices

- 3D based Whole Building Model (in virtual world)
- 3D based Security Devices Model (in virtual world)
- Location of security devices into 3D Model in real world
- Detection of Location Automatically by management of security devices over Wireless Network
- Display status information of security devices in 3D model

Monitoring & Sensing Security devices in 3D based SDMS

- Can manage security devices entirely in 3D building model
- Setting, changing, deleting security devices in 3D model.
- Use GPS, IP, Wi-Fi, RFID, UFID to identify security devices

III. Specification of physical devices



III. Specification of physical devices

PhysicalSensor

- **Identification Field: should contain location information in real world**
  - **-ID**
    - ***ID**
    - ***Sensor Types // (RFID, UFID, IP)**
    - *** Physical location**
      //(address, building #, room#)
      // GPS node containing 3D physical position
    - ***3D physical direction**

- **Enumeration Sensing Field**
  - **-Status: On/Off**
  - **-Report port // IP for Console or Remote Server**
- **Logging Time (Last On Time, Last Off Time)**
- **Fields to describe properties for sensors of physical devices**
  - **-Description**
  - **-Attributes**

III. Specification of physical devices (Security)

PhysicalSensor

PhysicalSensorNode: X3DSensorNode {

SFString	description	“”
SFNode [in, out]	metadata	NULL [X3DMetadataObject]
SFString [in]	url	NULL //NULL: local, IP: non local
SFInt32 [in, out]	sensorType	0 [0, ∞)
GpsSensorNode [in]	physicalLocation	//
SFVec3f [in, out]	position	0 0 0 (−∞, ∞)
SFRotation [in, out]	orientation	
SFBool [in, out]	enabled	TRUE
SFBool [out]	isActive	

}

III. Specification of physical devices

SecurityDeviceSensor inherited from PhysicalSensor

```
SecurityDeviceSensor: PhysicalSensor  {
        MFString   id // building #, Room #
        MFString   types [RFID, UFID, IP]
        SFNode     ShapeModel  [X3DObject]
        SFVec3f    Dimension
        SFTime     startTime
        SFTime     endTime
}
```

III. Specification of physical devices

Other Physical Device Sensors

CCTVSensor:PhysicalSensor {

}

IPCameraSensor:PhysicalSensor {

}

III. Specification of security devices into X3D

Operations for Managing PhysicalSensors

- Visualization of Status information of security devices
- Retrieve a security device
- Add a security device
- Delete a security device
- Update information

Q&A

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