Case Study 2: Smart Home Automation System using Annotation-Based Spring Configuration.

1. Device.java

```java
package com.example.smarthome;

import org.springframework.stereotype.Component;

@Component
public class Device {
    private String deviceType = "AC";
    private String status = "OFF";

    public String getDeviceType() {
        return deviceType;
    }

    public String getStatus() {
        return status;
    }

    public void turnOn() {
        status = "ON";
        System.out.println(deviceType + " is turned ON");
    }

    public void turnOff() {
        status = "OFF";
```

```java
        System.out.println(deviceType + " is turned OFF");

    }

}
```

---

2. User.java

```java
package com.example.smarthome;

import org.springframework.stereotype.Component;

@Component
public class User {
    private String name = "Nanditha";
    private String homeId = "Home1234";

    public String getName() {
        return name;
    }

    public String getHomeId() {
        return homeId;
    }
}
```

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3. AutomationService.java

```java
package com.example.smarthome;

import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.stereotype.Service;

@Service
public class AutomationService {

    @Autowired
    private User user;

    @Autowired
    private Device device;

    public void controlDevice() {
        System.out.println("User " + user.getName() + " from " + user.getHomeId() + " is
controlling device.");
        device.turnOn();
        // simulate some action
        device.turnOff();
    }
}
```

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4. AppConfig.java

```java
package com.example.smarthome;

import org.springframework.context.annotation.ComponentScan;
import org.springframework.context.annotation.Configuration;

@Configuration
@ComponentScan("com.example.smarthome")
public class AppConfig {
}
```

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5. MainApp.java

```java
package com.example.smarthome;

import org.springframework.context.ApplicationContext;
import org.springframework.context.annotation.AnnotationConfigApplicationContext;

public class MainApp {
    public static void main(String[] args) {
        ApplicationContext context = new
AnnotationConfigApplicationContext(AppConfig.class);
```

```
        AutomationService service = context.getBean(AutomationService.class);

        service.controlDevice();

    }

}
```

Output:

User Nanditha from Home1234 is controlling device.

AC is turned ON

AC is turned OFF