Instituto Superior Técnico - UL

Enterprise Integration

IoT Project

Home Security and Automation

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Contents

1 IoT BPM Components

This section contains services that are going going to be used by camunda processes on the upper layer. This service description is available on swagger on this link: https://app.swaggerhub.com/apis/SafeHomeIoT/SafeHomeIoT/1.0.0.

1.1 Customer Handling

In the customer handling micro service, our project offers the following functions:

- Catalogue (shows all available services for subscription)
- ValidateForm (validation of a customer's data for registration)
- CreateCustomer (registration of a new customer)
- SusbscribeToServices (customer subscribes to the available services)
- SuspendAll (Suspends all subscriptions of all customers an the respective IoT devices on the telecommunication provider.
- CancelSubscrition (a customer cancels his subscription)
- DeleteCustomer (a customer deletes his account)
- GetCustomerInfo (returns a customer's personal information, subscribed services and IoT devices)
- Paysusbcription (a customer pays his subscription at the end of the month)
- AddIoTDevice (a customer adds a new IoT device to the system)
- DeleteIoTDevice (a customer deletes a IoT device)
- GetDeviceInfo (returns information relative to a given IoT device.

1.2 Event Handling

This microservice contains an event reader which is constantly polling the getNextEvent service provided by the telecommunication provider, and inserting them on a database. It offers the following functions:

- Analytics (gets statistics from device events, for a given user and SIMCARD)

Two DMN tables were made to evaluate the event data to produce (or not) an alarm. These tables are going to be used by the business process implementation to develop in the next sprint.

Alarm Decision

`alarm1`

U	Input +	Output +
	Measurements	Raise Alarm
	boolean	boolean
1	${temperature} > 40	true
2	${temperature} < 10	true
3	${temperature} >= 10 && ${temperature} <= 40	false
4	${smokemeasurement} > 50	true
5	${smokemeasurement} <= 50	false
6	-	
+	-	

Figure 1: Smoke/Temperature DMN table

Video/Image/Motion Alarm

alarm2

U	Input +	Output +
	Readings	Raise Alarm
	string	string
1	"intrusion"	true
2	"not intrusion"	false
	-	

Figure 2: Video/Image/Motion DMN table

1.3 Telecommunications Provider

Provides several functions for IoT devices and it respective events.

- GetNextEvent (get the events of a certain type, starting from a specified event id.
- ActivateMSISDN (activate an IoT device given a SIMCARD and MSISDN)
- SuspendMSISDN (suspend an IoT device given a SIMCARD)
- DeleteMSISDN (delete an IoT device given a SIMCARD)
- GetStatusMSISDN (get the status of an IoT device with a given SIMCARD)