Project
Scenario

MTAT.03.229 Enterprise System Integration

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Introduction

Plant hiring is the equipment rental from specialized rental companies to construction companies. In this project, we model and implement the procurement process via interconnected enterprise systems in rental and building company, called respectively RentIt and BuildIt.

Part I: BuildIt

In this first part, we present the models for building company domain.
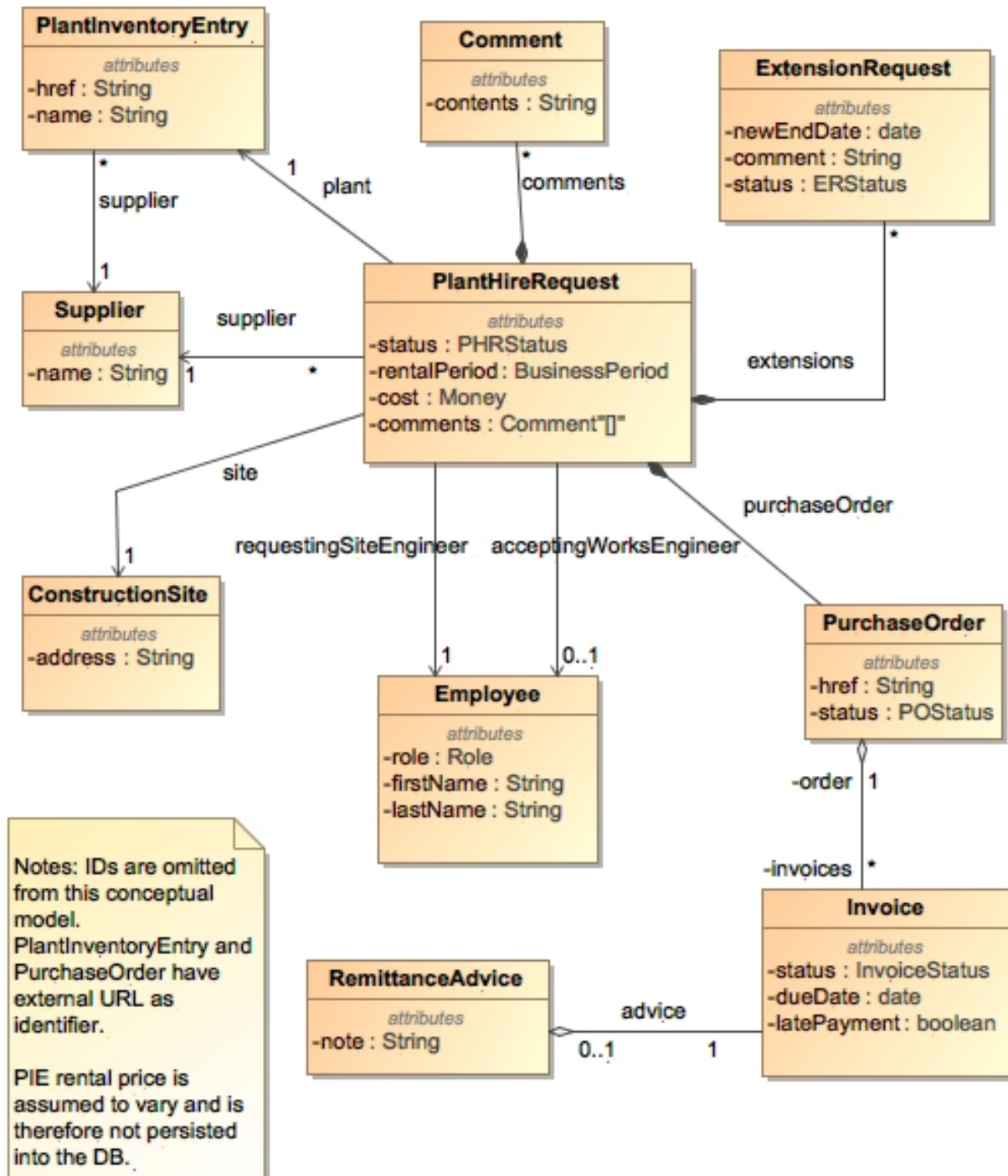
Domain model

First we present domain model in Figure 1.

Figure 1 BuildIt domain model

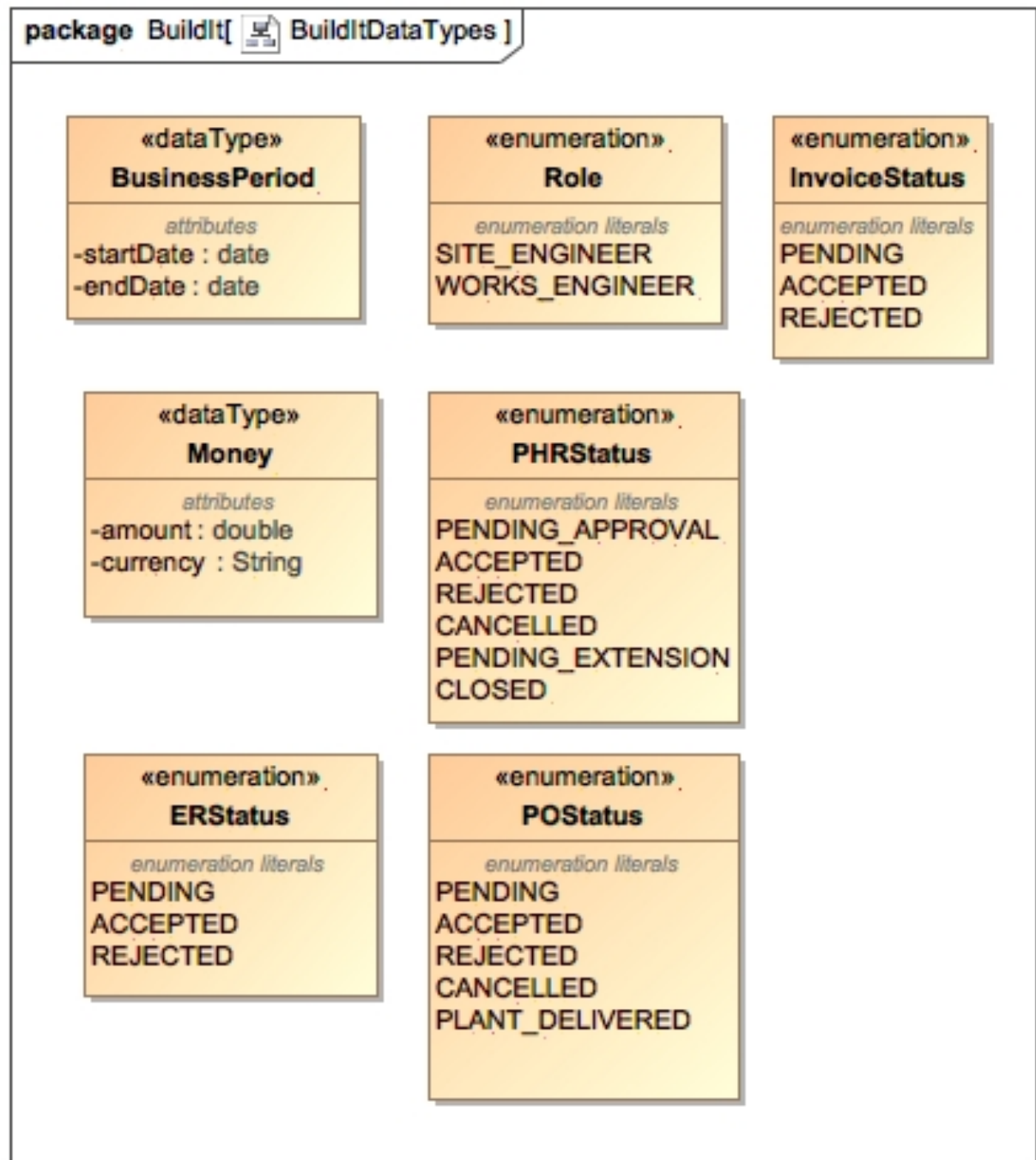The corresponding data types for BuildIt are in Figure 2.

package BuildIt[BuildItDataTypes]

«dataType»
BusinessPeriod

attributes
-startDate : date
-endDate : date

«enumeration»
Role

enumeration literals
SITE_ENGINEER
WORKS_ENGINEER

«enumeration»
InvoiceStatus

enumeration literals
PENDING
ACCEPTED
REJECTED

«dataType»
Money

attributes
-amount : double
-currency : String

«enumeration»
PHRStatus

enumeration literals
PENDING_APPROVAL
ACCEPTED
REJECTED
CANCELLED
PENDING_EXTENSION
CLOSED

«enumeration»
ERStatus

enumeration literals
PENDING
ACCEPTED
REJECTED

«enumeration»
POStatus

enumeration literals
PENDING
ACCEPTED
REJECTED
CANCELLED
PLANT_DELIVERED

Figure 2 BuildIt Data Types

Resource model

Resource model helps designing RESTful applications. It is depicted in Figure 3 for BuildIt.
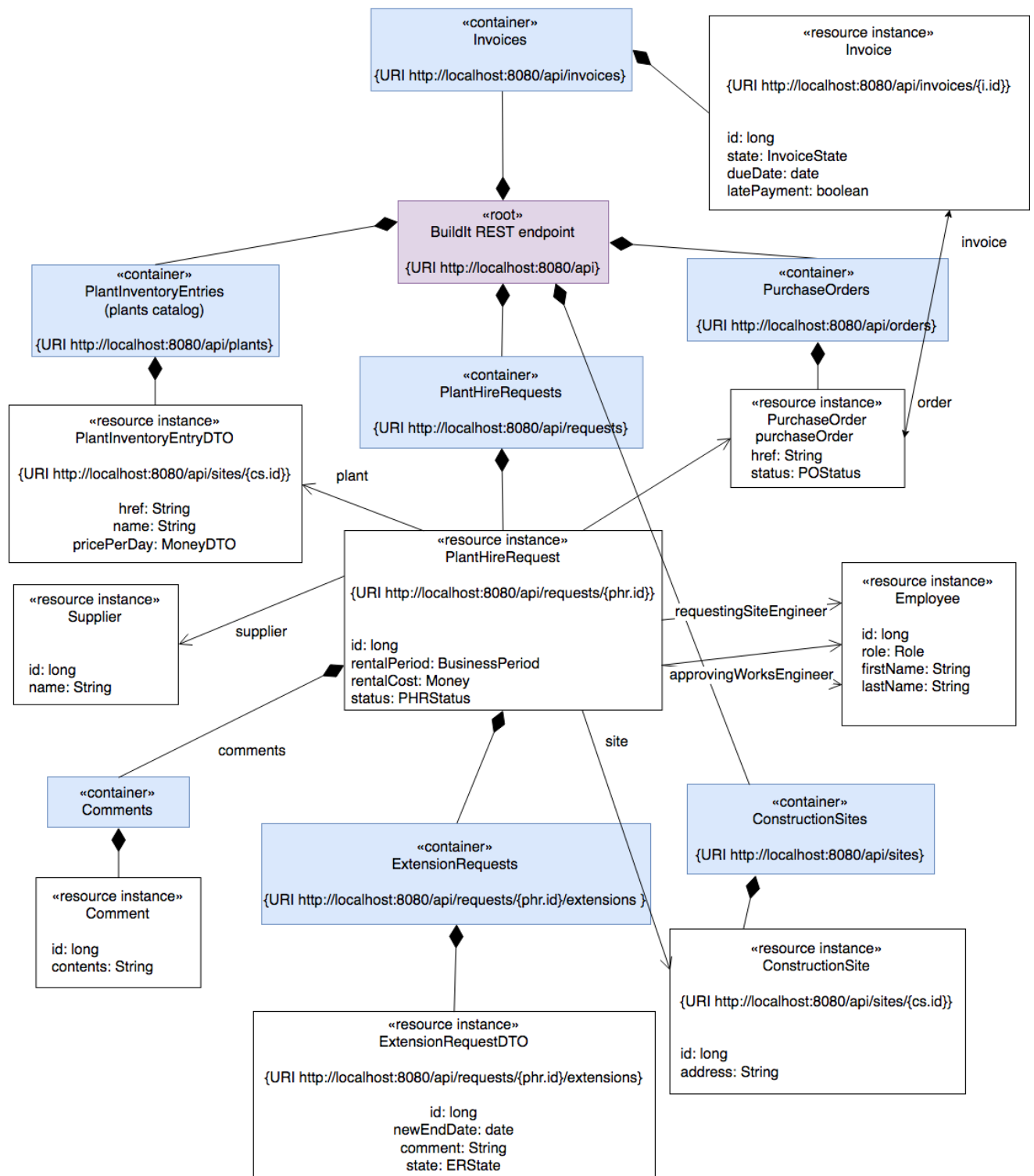

Figure 3 BuildIt resource model
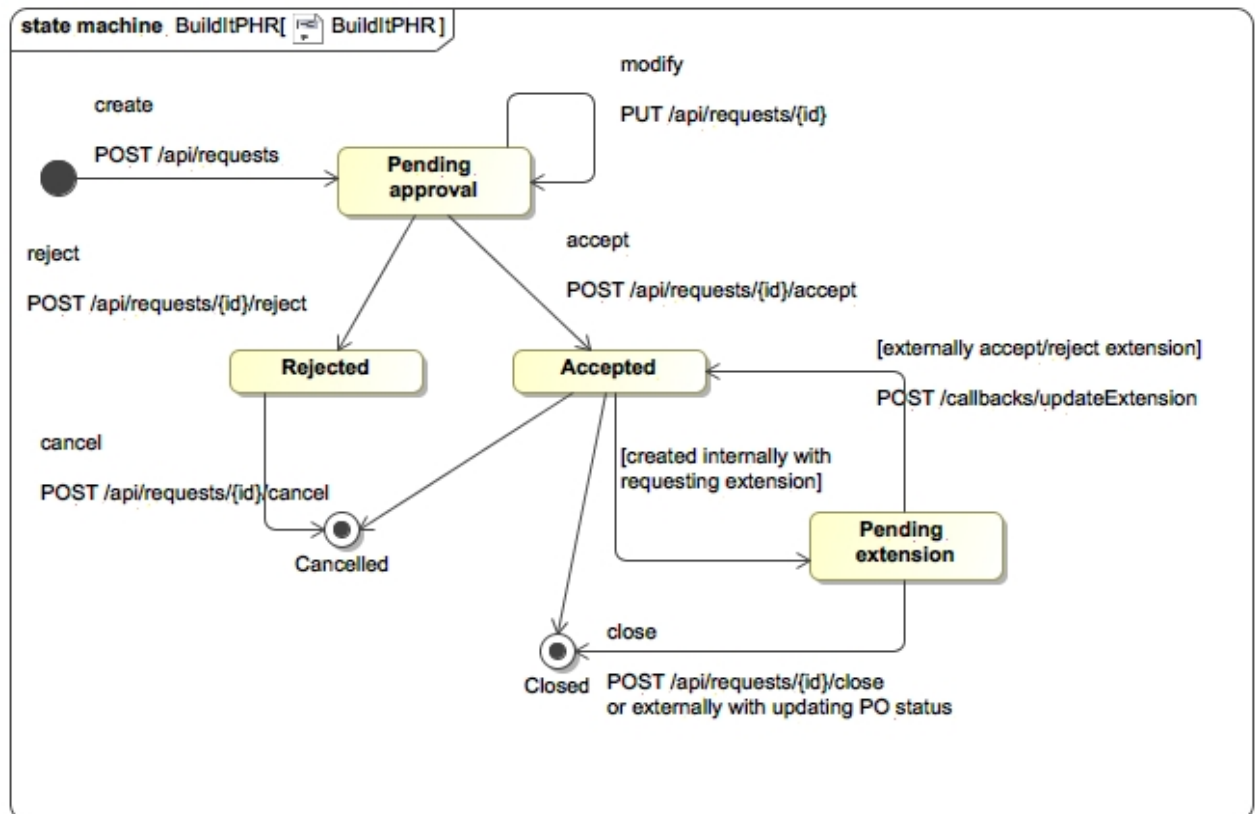
State models

Figure 4 State model for plant hire request

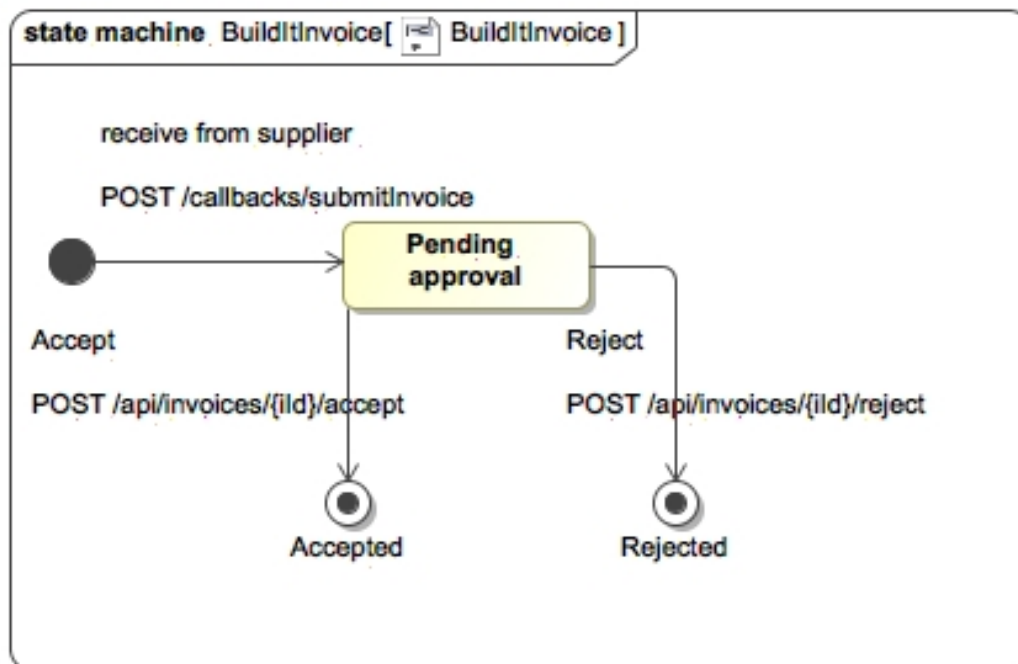State model for plant hire request is depicted in Figure 4.

Figure 5 State model for invoice

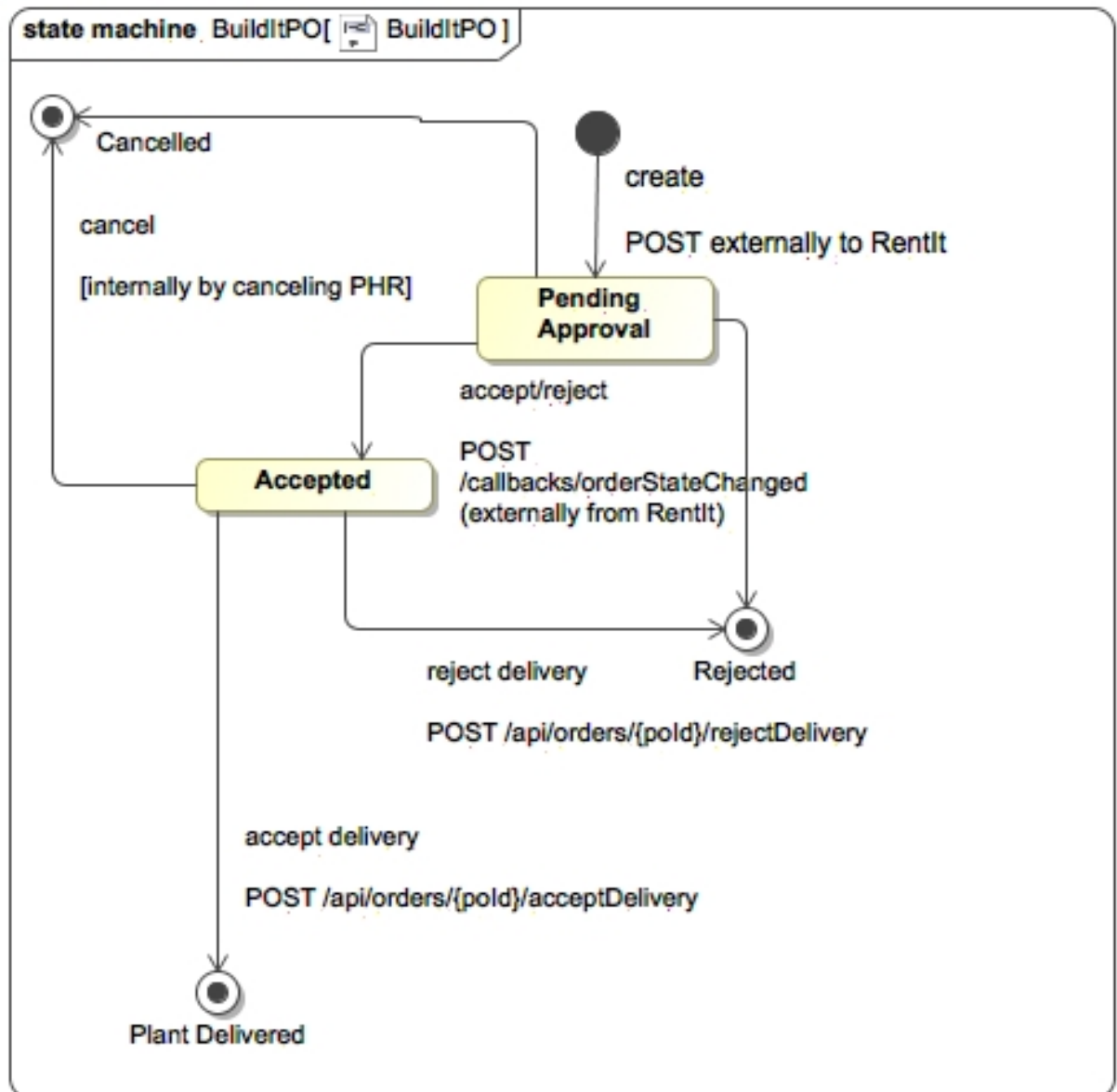State model for invoice is depicted in Figure 5.

Figure 6 State model for BuildIt Purchase Order

State model for purchase order is depicted in Figure 6.

The Apiary blueprint for BuildIt system is located at:

https://buildit28.docs.apiary.io/

BuildIt API exposes the following endpoints, with their function described:
- (CC1) Create Plant Hire Request (PHR)
  - Query plants catalog - site engineer can thereafter pick a plant to rent;
  - Retrieve list of construction sites;
  - Create Plant Hire Request (PHR) – by site engineer, JSON payload contains:
    - Plant ID with corresponding supplier ID (both can be retrieved from the chosen plant's data transfer, for end-user the supplier is quite transparent in here);
    - Construction site (e.g. site engineer can select a site from drop-down in a plant hire request form)
    - Rental period
- View all PHRs / (CC4) one PHR by ID – both site and works engineer;
- (CC2, CC5) Modify PHR by ID – both engineers;
- Trigger operation on PHR:
  - (CC5) Accept/reject – by works engineer;
  - (CC3) cancel - by site engineer;
  - Comment – both engineers;
  - (CC8) Request extension – by site engineer;
- (CC7) View all Purchase Orders (PO) – both engineers;
- Calls from external partner RentIt:
  - (CC6) Receive PHR status update callback - from integrated RentIt partner;
  - (CC8) Receive extension status update callback - from integrated RentIt partner;
  - (CC9, CC10) Receive invoice - from integrated RentIt partner – it must contain the corresponding PO ID;
- Retrieve all invoices, optionally filtering by status – so they could be approved;
- (C11) Retrieve PO associated with an invoice
- (C11) Approve/reject invoice

Part II: RentIt

TBD

Summary

TBD