Arrowhead Framework summer school assignments
SystemRegistry - Silia

Design, implement and test SystemRegistry according to the documentation in the book using REST.

Integrate a local cloud on-boarding procedure with DeviceRegistry, SystemRegistry and Authorisation systems
DeviceRegistry - Ani

Design, implement and test DeviceRegistry according to the documentation in the book using REST

Integrate a local cloud on-boarding procedure with SystemRegistry, SystemRegistry and Authorisation systems
Configuration system - Emanuel

Design, implement and test Configuration system according to the documentation in the book using REST.

Integrate the Configuration system to a local cloud and perform a system configuration update on an application system preferable with service consumption authorisation using the Authorisation system.
PlantDescription system - Simon

Investigate the current PlantDescription system and extend that implementation to allow both push and pull of Orchestration rule to and from an orchestration system including the authentication and authorisation of an orchestration system using REST and XML.

Design and implement above extension to the PlantDescription system using REST and XML.

Design and integrate a scenario where the PlantDescription system updates the orchestration rule of an Orchestration system including the authentication and authorisation of involved systems.
Next Generation Access Control - NGAC Christina

Implement an Arrowhead NGAC-Authoursation system based on the NGAC standard proposal.

Implement a simple Application service producer and consumer pair of systems based on REST and XML.

Integrated a demonstration where the NGAC AA-Authorisation system is consulted for authorisation of a service consumption between the simple service pair.
Barcode reader - Fredrik

Implement a simple barcode reader service producer using MQTT and XML. Implement a simple Task ready service (input by operator) using MQTT/XML. Implement a simple workstation order system using MQTT/XML.

Provide code template for Arrowhead producer using MQTT/XML. Provide a code template for Arrowhead consumer using MQTT/XML.

Integrate these to a local cloud where a workstation system shall subscribe to all barcode reads and to the Task ready input from the operator.
Docker container deployment of Core services - Fernando

- Implement a docker container with the mandatory core system
- Implement docker container for each of the support core systems
- Implements simple services producer and consumer pair using all the mandatory core service using REST and JSON.
- Provide code templates for a service producer and consumer using REST
- These shall interact with ServiceRegistry, Authorisation and Orchestration (push and pull) systems
- Integrated a working local cloud with the simple service pair (CoAP and MQTT) and all available core systems.
AAA - Authorisation system - Kiran

Investigate the existing AAA system. Provide improvements proposal and implement these using CoAP and XML.

Implements simple services producer and consumer pair using improved AAA using CoAP and XML.

Provide code templates for a service producer and consumer using CoAP and XML.

Integrated the simple producer and consumer service pair in a local cloud utilising the improved AAA system.
District heating substation - Jacob

Implements Arrowhead Framework CoAP services for:

- Temperature sensor
- Pump motor actuation
- Valve actuation
- Flow meter sensor
- Control loop
  - SySD from Jan van Deventer
- DH substation SoS functionality
  - SoSD from Jan van Deventer
- Intended lab facility for test of research ideas and results
FlexOffer service - Thomas

Design and implement the FlexOffer services currently available using REST and XML (available services reimplemented using XMPP).

Provide code templates for a service producer and consumer using REST and XML

Integrated a FlexOffer local cloud using the mandatory core systems.
Legacy interface-PLC — An

Design and implement an Arrowhead system allowing for the management and monitoring of a PLC based on IEC61131 or IEC61499 using OPC-UA.

Provide code templates for a service producer and consumer using OPC-UA and XML.

Integrate above system local cloud using the mandatory core systems using REST.
PlantDescription - Christian

Design and implement 2 additional views from RAMI4.0 or IIRA with associated services. Update the existing services to accept data from the 2 additional views.

Design and implement a PlantDescription Management service enabling the addition and management including security attributes of objects to the PlanDescription.

Integrated the extended Plant description with Simon
Presentation of assignment results + demos
Sept 29, 9-12 and
Oct 6, 13-15