ITIA
Information Model Robot
Lab Report

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1 OPC UA Gateway

OPC UA Gateway	
Device:	RaspberryPi 3
ID:	BCM2835 (a02082)
MAC:	b8:27:eb:09:db:ca
IP:	192.168.162.84/25
Port:	4840

2 Robot Controller

Robot Controller	
Device:	Robot Controller
ID:	CR750-D
MAC:	38:e0:8e:9e:89:8d
IP:	192.168.162.82/25
PORT:	10003

3   I/O Mapping

Sensors	
Index	**Description**
1	Robot handling module - workpiece alignment
2	Robot handling module - workpiece in pick-up position
3	Control panel - Start (make contact)
4	Control panel - Stop (normally closed)
5	Control panel - Reset (no contact)
7	Control panel - COM bridge (I7)
8	Robot assembly module (spring magazine) - slider retracted
9	Robot assembly module (spring magazine) - slide extended
10	Module robot assembly (spring magazine) - spring available
12	Robot assembly module (lid magazine) - slide retracted
13	Robot assembly module (lid magazine) - slide extended
15	Module robot assembly (lid magazine) - lid on tray
900	Robot module (hand) - part not black

Actuators	
Index	**Description**
0	Control panel - Start (LED)
1	Control panel - Reset (LED)
2	Control panel - Q1 (LED)
3	Control panel - Q2 (LED)
4	Control panel - COM bridge (Q4)
8	Robot assembly module (spring magazine) - slide out
12	Robot assembly module (lid magazine) - slide out

4 OPC UA Methods

OPC UA Methods			
Method	**Description**	**ObjectId**	**MethodId**
ReadInput(Index)	Returns the `Value` of the input at the given `Index`	ns=4;i=1066	ns=4;i=1067
WriteOutput(Index, Value)	Sets the output at the given `Index` to the given `Value`	ns=4;i=1066	ns=4;i=1111
GetMostRecentError()	Returns the most recent error that occurred	ns=4;i=1103	ns=4;i=1105
GetRecentErrors(NumberOfErrors)	Returns the last `NumberOfErrors` errors that occurred	ns=4;i=1066	ns=4;i=1140
ResetError()	Resets the error state of the robot controller	ns=4;i=1102	ns=4;i=1108
OpenGripper()	Opens the multi function gripper	ns=4;i=1130	ns=4;i=1131
CloseGripper()	Closes the multi function gripper	ns=4;i=1130	ns=4;i=1134
Move(X,Y,Z,A,B,C)	Translates the robot arm to the position (`X`,`Y`,`Z`) with the rotation (`A`,`B`,`C`)	ns=4;i=1130	ns=4;i=1137
MoveToSafePosition()	Moves the robot arm into the predefined safety position	ns=4;i=1113	ns=4;i=1115
RestartServer()	Reboots the OPC UA Gateway device	ns=0;i=2253	ns=4;i=1164

5 OPC UA Objects

OPC UA Objects		
Object	**Description**	**ObjectId**
MethodSet (Controller)	The MethodSet object, which is a component of the Controller object	ns=4;i=1066
GetMostRecentError	The GetMostRecentError object, which is a component of the ErrorLog Functions folder	ns=4;i=1103
ResetError	The ResetError object, which is a component of the ResetError Functions folder	ns=4;i=1102
MethodSet (MotionDevice)	The MethodSet object, which is a component of the MotionDevice object	ns=4;i=1130
MoveToSafePosition	The MoveToSafePosition object, which is a component of the MoveToSafeState Functions folder	ns=4;i=1113
Server	The Server object, which is organized by the Objects folder	ns=0;i=2253

6 OPC UA Namespaces

OPC UA Objects		
NamespaceIndex	**NamespaceUri**	**Description**
0	http://opcfoundation.org/UA/	Standard Nodeset
2	http://opcfoundation.org/UA/DI/	Devices Nodeset
3	http://opcfoundation.org/UA/Robotics/	Robotics Nodeset
4	http://auto.tuwien.ac.at/UA/MitsubishiElectricRobot/	Mitsubishi Electric Robot Nodeset