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| **F1 Detect** |
| F1.1 When <input ‘System Ready’ is received >the function <F1.1> shall generate <output ‘SystemCalibrated’ >. |
| F1.2 When <input ‘SystemCalibrated’ is received, input ‘LookForProduct’ is received  AND input ‘Reset Signal’ is received the function <F1.2> shall generate <output ‘InterpretSignal’ >. |
| F1.3 When <input ‘InterpretSignal’ is received AND input ‘Product’ is received>the function <F1.3> shall generate <output ‘Product Detected’ AND ’Count’>. |
| **F2 Inspect** |
| F2.1 When <input: ‘Product’>, The function<F2.1>Shall generate <output: ‘OutBus’> |
| F2.2 When <input: ‘Detection signal’>, The function<F2.2>Shall generate <output: ‘Trigger’> |
| F2.3 When <input: ‘Product AND Power AND Trigger’>, The function<F2.3>Shall generate <output: ‘Product Image AND OutBus AND OutBus1’> |
| F2.4 When <input: ‘Product Image’>, The function<F2.4>Shall generate <output: ‘ProductOrientation’> |
| F2.5 When <input: ‘Product Image’>, The function<F2.5>Shall generate <output: ‘ExtractedQRCode’> |
| F2.6 When <input: ‘ExtractedQRCode’>, The function<F2.6>Shall generate <output: ‘ExportQR’> |
| F2.7 When <input: ‘Product Image’>, The function<F2.7>Shall generate <output: ‘Dimension of product’> |
| F2.7.1 When <input: ‘Product Image’>, The function<F2.7.1>Shall generate <output: ‘Coordinates’> |
| F2.7.2 When <input: ‘Coordinates’>, The function<F2.7.2>Shall generate <output: ‘Dimension of product’> |
| F2.8 When <input: ‘Product Image’>, The function<F2.7>Shall generate <output: ‘ProductPosition’> |
| **F3 Compare Dimensions** |
| F3.1 When <input ‘Dimension of product’ is received >the function <F3.1> shall generate <output ‘ImportedDimensions’ >. |
| F3.2 When <input ‘ImportedDimensions’ is received >the function <F3.2> shall generate <output ‘ReferDBDimensions’ AND ‘CurrentDimensions’>. |
| F3.3 When <input ‘ReferDBDimensions’ is received >the function <F3.3> shall generate <output ‘DBDimensions’ >. |
| F3.4 When <input ‘DBDimensions’ is received >the function <F3.4> shall generate <output ‘ExpectedDimensions’ >. |
| F3.5 When <input ‘ExpectedDimensions’ is received AND input ‘CurrentDimensions’ is received >the function <F3.5> shall generate <output ‘Faulty Product Detected’ AND ‘BeginPickOperation’>. |
| **F4 Calibrate** |
| F4.1 When <input: ‘Power AND Motor AND Frame components’>, The function<F4.1>Shall generate <output: ‘ConfirmSetup’>. |
| F4.1.1 When <input: ‘Frame components’>, The function<F4.1.1>Shall generate <output: ‘Frame’>. |
| F4.1.2 When <input: ‘Motor AND Frame’>, The function<F4.1.2>Shall generate <output: ‘Frame and motor setup’>. |
| F4.1.3 When <input: ‘Frame and motor setup AND Power’>, The function<F4.1.3>Shall generate <output: ‘Physical setup -> ConfirmSetup’>. |
| F4.2 When <input: ‘UIReady’>, The function<F4.2>Shall generate <output: ‘Trigger’>. |
| F4.3 When <input: ‘Trigger AND SetupConfirmation AND Power’>, The function<F4.3>Shall generate <output: ‘JogComplete’>. |
| F4.4 When <input: ‘JogComplete AND Power’>, The function<F4.4>Shall generate <output: ‘Robot at home position -> ConfirmCalibration’>. |
| **F5 Pick Product** |
| F Begin Task When <input: ‘Beiginpickoperation’>, The function<F Begin Task>Shall generate <output: ‘Coordintes AND Orientation’>. |
| F5.1 When <input: ‘Coordinates’>, The function<F5.1>Shall generate <output: ‘Importedcoordiantes’>. |
| F5.2 When <input: ‘Orientation’>, The function<F5.2>Shall generate <output: ‘Importedorientation’>. |
| F5.3 When <input: ‘Importedorientation AND Importedcoordinates AND New coordinates ’>, The function<F5.3>Shall generate <output: ‘Current Position AND Defined Path’>. |
| F5.4 When <input: ‘Corrected Postition AND Corrected Force’>, The function<F5.4>Shall generate <output: ‘New coordinates AND New Force value’>. |
| F5.5 When <input: ‘Defined Path’>, The function<F5.5>Shall generate <output: ‘Ready to pick Pick Product’>. |
| F5.6 When <input: ‘New Force value AND Ready to pick Pick Product ’>, The function<F5.6>Shall generate <output: ‘Product Picked AND Current Force’> |
| **F6 Translate Product** |
| F6.1 When <input ‘Product Picked’ is received >the function <F6.1> shall generate <output ‘Ready to be Placed’ >. |
| **F7 Place Product** |
| F7.1 When <input ‘Corrected Position’ is received >the function <F7.1> shall generate <output ‘New Position’ >. |
| F7.2 When <input ‘Ready to be placed’ is received AND input ‘New Position’ is received>the function <F1.3> shall generate <output ‘Gripper Lowered’ >. |
| F7.3 When <input ‘Gripper Lowered’ is received >the function <F7.3> shall generate <output ‘Product Released’ >. |
| F7.4 When <input ‘Product Released’ is received >the function <F7.4> shall generate <output ‘Product Placed’ >. |
| **F08 Handle Contingencies** |
| F8.1 When <input ‘Force on gripper’ is received >the function <F8.1> shall generate <output ‘Appropriate force’ >. |
| **F9 Hold Operations** |
| F9.1 When <input ‘Product Not Detected’ is received >the function <F9.1> shall generate <output ‘Return To Detection’ >. |
| **F10 Halt Operations** |
| F10.1 When <input ‘EmergencyStopSignal’ is received >the function <F10.1> shall generate <output ‘RecievedInput’ >. |
| F10.2 When <input ‘RecievedInput’ is received >the function <F10.2> shall generate <output ‘StopOperation’ >. |
| F10.3 When <input ‘StopOperation’ is received >the function <F10.3> shall generate <output ‘Stop Signal’ AND ‘NotifyOperator’>. |
| F10.3 When <input ‘NotifyOperator’ is received >the function <F10.4> shall generate <output ‘NotifySTOP’ >. |
| **F11.Handle User Interface** |
| F1.1 When <input ‘Reset Confirmation’ is received >the function <F1.1> shall generate <output ‘Logout Successful’ >. |
| F11.2 When <input ‘Power Supply’ is received >the function <F11.2> shall generate <output ‘WaitforInput’ >. |
| F13.3 When <input ‘Receive User Input’ is received >the function <F11.3> shall generate <output ‘Ready to Interact’ >. |
| F11.4 When <input ‘Provide User Interface’ is received >the function <F11.4> shall generate <output ‘VisualsReady’ >. |
| F11.5 When <input ‘VisualsReady’ and ‘User Credentials’ is received >the function <F11.5> shall generate <output ‘Received Credentials’ >. |
| F11.6 When <input ‘Received Credentials’ is received >the function <F11.6> shall generate <output ‘Confirmation’ >. |
| F11.7 When <input ‘Confirmation’ is received >the function <F11.7> shall generate <output ‘Login Confirm’ and ‘Open Dashboard’ >. |
| F11.8 When <input ‘Open Dashboard’ is received >the function <F11.8> shall generate <output ‘Dashboard Loaded’ >. |
| F11.9 When <input ‘Stop Button’ is received >the function <F11.9> shall generate <output ‘Notify Emergency’ >. |
| F11.10 When <input ‘Dashboard Loaded’ and ‘Faulty Product Detected’ and ‘Count’ and ‘Observe parameter’ is received > the function <F11.10> shall generate <output ‘Notify Emergency’ >. |
| F11.11 When <input ‘Notify Emergency’ is received >the function <F11.11> shall generate <output ‘’ >. |
| F11.12 When <input ‘Logout Confirmed’ and ‘Stop Confirm’ is received >the function <F11.12> shall generate <output ‘Reset system’ >. |
| F11.13 When <input ‘DB Updated’ is received >the function <F11.13> shall generate <output ‘Stop Operation’ >. |
| **F12 Reset Position** |
| F12.1 When <input ‘Product placed’ is received OR ‘Log-out’ is received >the function <F12.1> shall generate <output ‘home position’ >. |
| F12.2 When <input ‘home position’ is received >the function <F12.2> shall generate <output ‘power off signal’ AND ‘Coordinates’ >. |
| F12.3 When <input ‘power off signal’ is received >the function <F12.3> shall generate <output ‘System ready’ >.  F12.4 When <input ‘Coordinates’ is received >the function <F12.4> shall generate <output ‘HoldAtHomePosition’ >. |