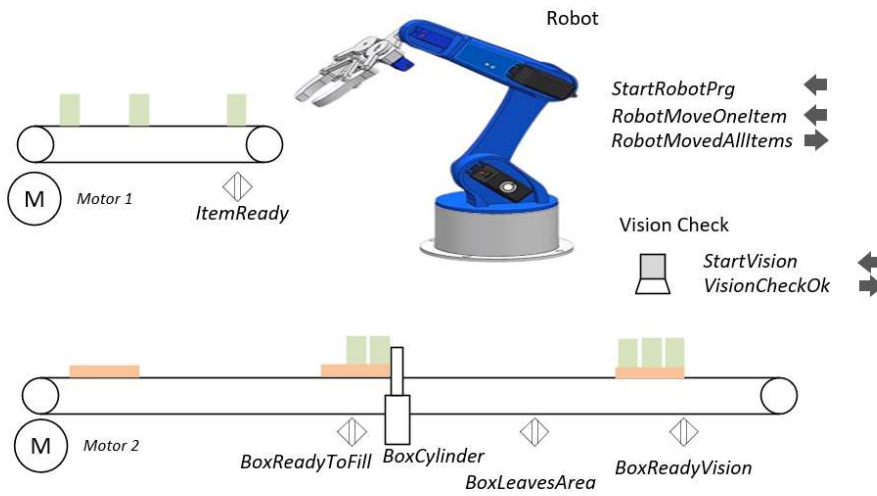# Packing Item Robot Control

Robots packs three items in a box. When the packing is finished, it is checked by a vision camera.

When the robot has finished moving the items to the box, the PLC gets a confirmation (RobotMovedAllItems) from the robot controller. Finally, the box is checked by a vision camera.


```
MAIN
    1  PROGRAM MAIN
    2  VAR
    3  END_VAR
    4
    1  FillBox();
    2  Vision();
    3  StartStop();
```

```
    1  PROGRAM FillBox
    2  VAR
    3       BoxCylinder          :   BOOL;   // cylinder to stop box to be filled
    4       ItemReady            :   BOOL;   // item ready to be moved to the box by the robot
    5       StartRobotPrg        :   BOOL;   // start robot program
    6       RobotMoveOneItem     :   BOOL;   // signal to robot: move one item
    7       BoxReadyToFill       :   BOOL;   // a box is ready to be filled
    8       RobotMovedAllItems   :   BOOL;   // signal from robot. Robot has moved all items
    9  END_VAR
```

```
1    PROGRAM Vision
2    VAR
3            BoxLeavesArea    :    BOOL;    // box leaves the filling area and is on the way to vision check
4            BoxReadyVision   :    BOOL;    // box ready for vision check
5            VisionCheckOk    :    BOOL;    // signal from vision. TRUE if box is OK
6            LampBoxOk        :    BOOL;    // signal lamp. Box OK
7            LampBoxNok       :    BOOL;    // signal lamp. Box NOK
8            StartVision      :    BOOL;    // start vision check
9    END_VAR
```

1 Box ready to be checked

```
    GVL.RunBit   BoxReadyVision                                                      StartVision
    ──┤ ├──────────┤ ├───────────────────────────────────────────────────────────────(S)
```

2 Vision check done

```
    GVL.RunBit   StartVision   VisionCheckOk                                         LampBoxOk
    ──┤ ├──────────┤ ├───────────┤ ├──────────┬──────────────────────────────────────( )
                                              │                                      LampBoxNok
                                              └──────────────────────────────────────(/)
```

3 Next box

```
    GVL.RunBit   BoxLeavesArea                                                       GVL.K3Flag
    ──┤ ├──────────┤ ├────────────┬──────────────────────────────────────────────────(S)
                                  │                                                   StartVision
                                  └──────────────────────────────────────────────────(R)
```

```
1    PROGRAM StartStop
2    VAR
3        StartPb        :    BOOL;    // start switch (NO)
4        StopPb         :    BOOL;    // stop switch (NC)
5        Motor1         :    BOOL;    // run conveyor 1 belt
6        Motor2         :    BOOL;    // run conveyor 2 belt
7    END_VAR
```

1 start plant

```
    StartPb                                                                          Motor1
    ──┤ ├────────┬───────────────────────────────────────────────────────────────────(S)
                 │                                                                    Motor2
                 ├───────────────────────────────────────────────────────────────────(S)
                 │                                                                    GVL.K3Flag
                 ├───────────────────────────────────────────────────────────────────(S)
                 │                                                                    GVL.RunBit
                 └───────────────────────────────────────────────────────────────────(S)
```

2 stop plant

```
    StopPb                                                                           Motor1
    ──┤/├────────┬───────────────────────────────────────────────────────────────────(R)
                 │                                                                    Motor2
                 ├───────────────────────────────────────────────────────────────────(R)
                 │                                                                    GVL.RunBit
                 └───────────────────────────────────────────────────────────────────(R)
```