

Object-Based Calibration

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Briefly

purpose :

1. If want to use Fixed Point alignment ,need to use dice board and make a Workspace ,before edit vision job.
2. However, sometime there don' t have enough space to placing calibration plates or there is no calibration plate near.
3. Though this feature, users cloud directly uses the visual characteristics of the workpiece doing camera calibration

Method in the past

Camera clibration
(dice board)



Vision job edit



Create point
on vision base

Calibration with objects

Vision job edit
+
Object Based
Calibration



Create point
on vision base

Step 1 : Do tilt calibration first

Tilt Correction

Live Video

Warning!!!

Please press PLAY/PAUSE key on Robot Stick to pause robot visual navigation and press STOP key to leave this stage.

50%

Image: (0021, 0018); RGB: (043, 047, 056)

Step 2 : Enter the visual task to select the object correction

The screenshot displays a robot control interface. On the left, a 'Camera List' panel shows 'Eye-in-Hand' with camera model 'TMCam_AF01 (4103037178)'. A 'Camera Kit' icon is also visible. The main area features a 'Please select an application to start' dialog with six options: Visual Servoing, Fixed Point, AOI-only, Vision-IO, Landmark Alignment, and Object-based Cali. The 'Object-based Cali' option is highlighted with a green box. To the right, a 'Controller' panel shows a 3D view of a robotic arm with coordinate axes (RX, RY, RZ) and a '(0,0,0)' origin. Below this, a table lists joint positions for X, Y, Z, Rx, Ry, and Rz. The Rx value is 179.32 and is highlighted in green. A 'Move' button is at the bottom right.

Camera List

Eye-in-Hand
Camera Model:
Calibrated
TMCam_AF01 (4103037178)

Camera Kit

Please select an application to start

Visual Servoing Fixed Point AOI-only

Vision-IO Landmark Alignment **Object-based Cali.**

Controller

Joint Base Tool IO FreeBot

Jog Distance 0.1 ° Speed 1.00%

Camera Base Axis Tool Base Axis Tool Related Move

<input type="radio"/> X	495.70	<input type="text"/>	mm
<input type="radio"/> Y	-121.92	<input type="text"/>	mm
<input type="radio"/> Z	312.80	<input type="text"/>	mm
<input checked="" type="radio"/> Rx	179.32	<input type="text"/>	°
<input type="radio"/> Ry	-1.05	<input type="text"/>	°
<input type="radio"/> Rz	-90.55	<input type="text"/>	°

Move

Step 3 : Edit vision job

The screenshot displays a software interface for editing a vision job. On the left, a 'Flow' panel shows a sequence of steps: 'TMCam_AF01' (111.00 ms), 'ENHANCE Contrast_1' (9.00 ms), 'FIND ShapePattern_...' (52.00 ms), and 'CALIBRATION' (All: 178.00 ms). A green box highlights the 'FIND' step, and a '1' in a circle is next to it. A '2' in a circle is next to the 'CALIBRATION' step. On the right, a 'Live Video' window shows a camera feed of a 'TM ROBOT' logo on a screen. A blue bounding box is drawn around the logo, and a blue arrow points to it. A '1' in a circle is next to the bounding box. At the bottom of the video window, there are control icons for zoom (40%), pan, and play/pause.

1. Set object detection and ensure that positioning results are stable
2. Click CALIBRATION to enter the page

Step 4 : Object-based Calibration

Object-based Calibration

Object-based Calibration

1 Move to Initial Position

Moving Range

Radius in X-Y Plane (mm)


200

Distance in ± Depth (mm)

100

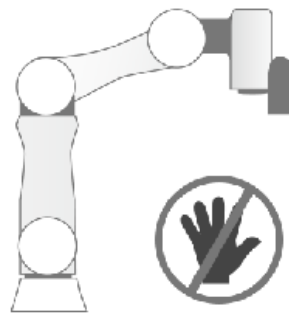
Start Calibration

Live Video



3 Move Robot

Please press the "+" button on Robot Stick continuously to start the Visual Servo motion of the robot.



Cancel

4

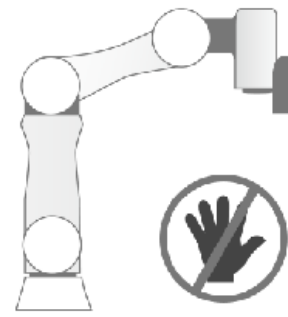
! Success!

Success! The calibration procedure is done.

OK

5 Move Robot

Please press the "+" button on Robot Stick continuously to move the robot to the initial position.



Cancel

6

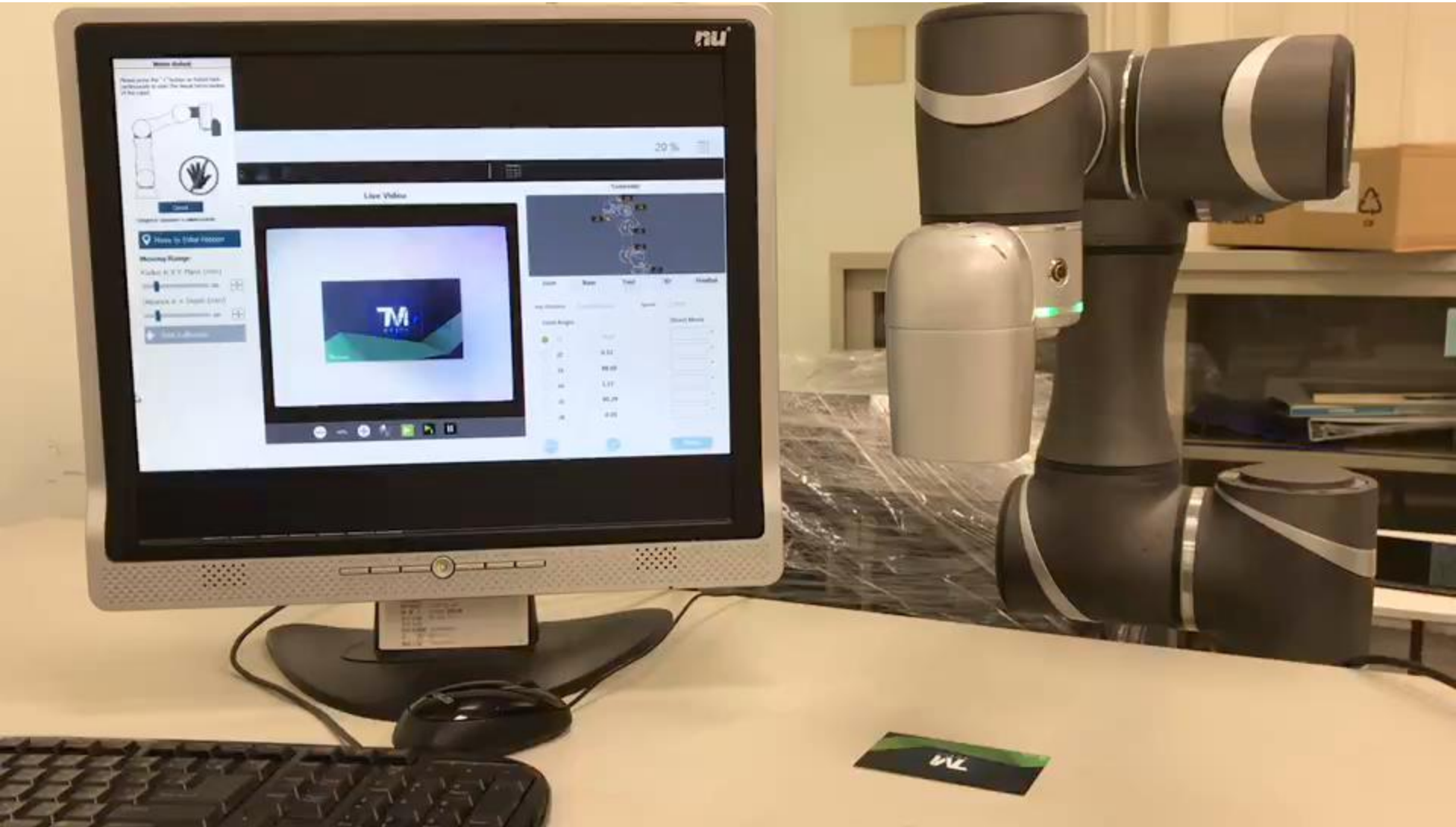
! Success!

The Robot is at the initial position.

OK

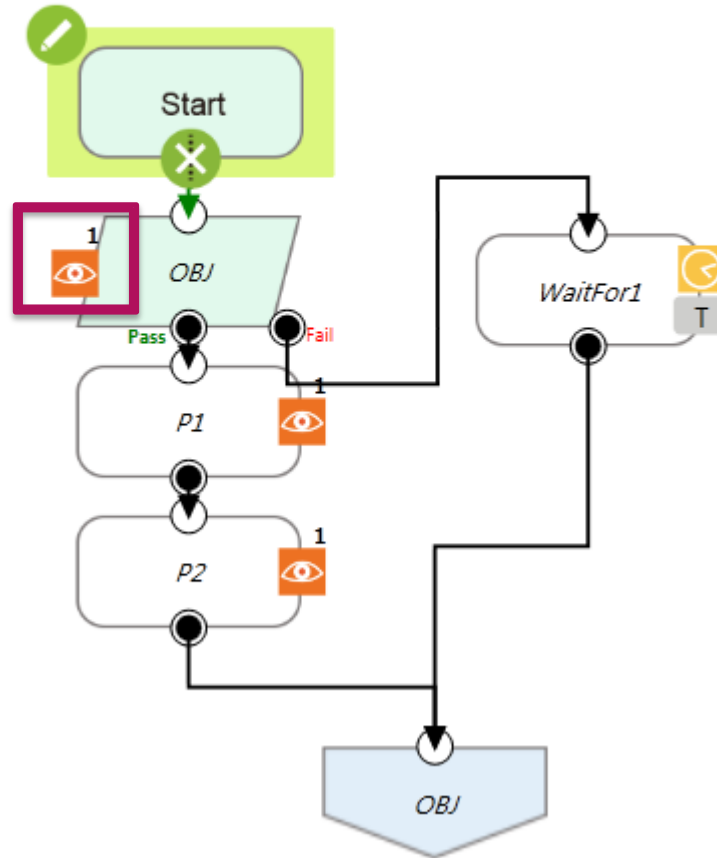
1. Set the movement range of the calibration process
2. Click Start Calibration
3. Long press the + button on the Robot Stick, the arm will move to 4 points for correction
4. Calibration success
5. Long press + again to return to the initial point
6. Homing success

Step 4 : Object-based Calibration

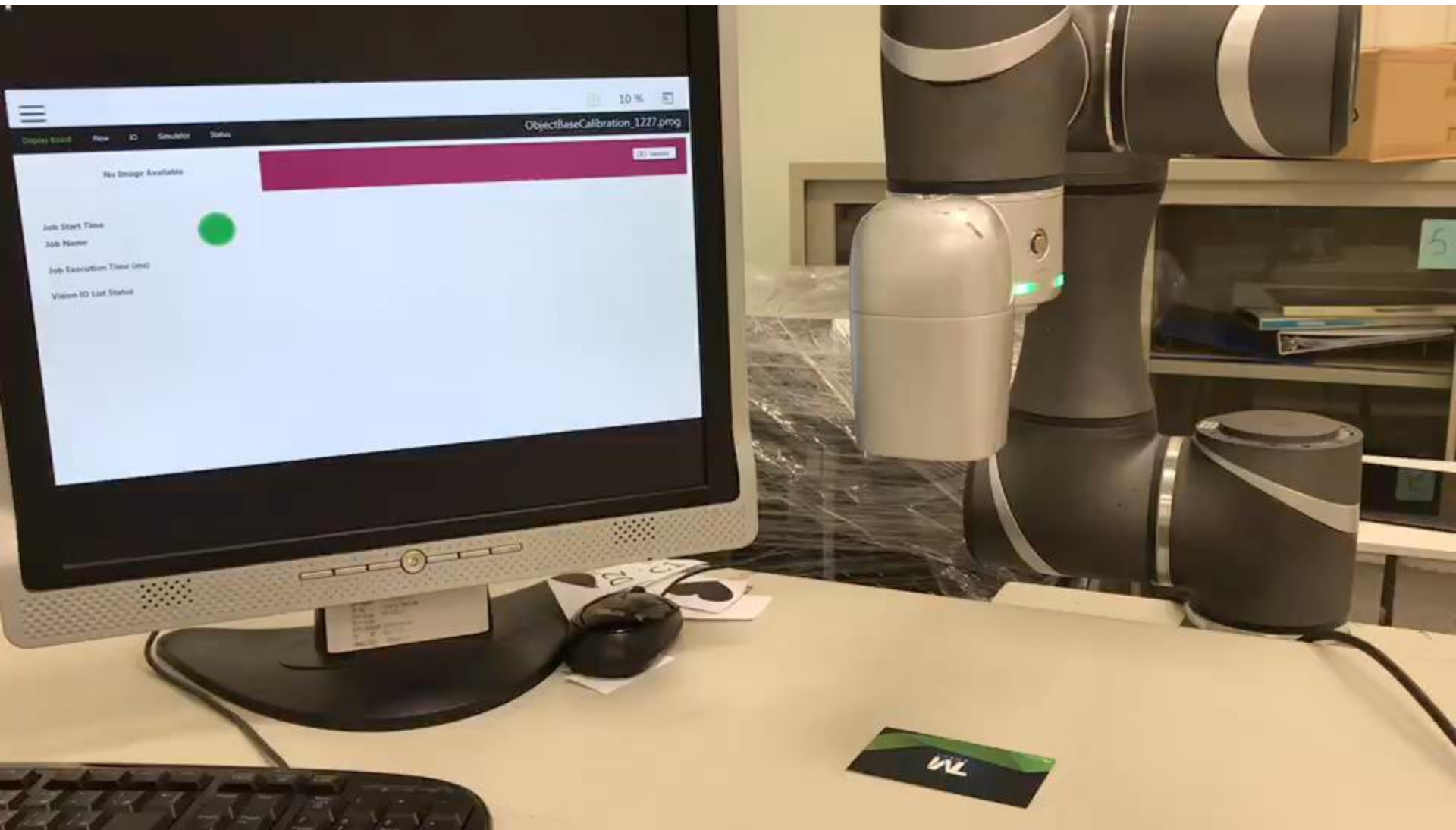


Step 5 : Create points on vision base

+ ObjectBaseCalibration_1227



Step 6 : Project Execution





Thank You

