TBM 1: Prepare Assembly Aid Tray for Force Fitting

Team name: _____

Referee I: _____, **Referee II:** _____

Date and time: _____

Duration: _____ ☐ **Timeout**

Achievements

	yes	no
The robot correctly grasp the assembly aid tray:	☐	☐
Comment: _____		
The robot correctly grasp the first bearing box:	☐	☐
Comment: _____		
The robot correctly grasp the second bearing box:	☐	☐
Comment: _____		
The robot insert the first bearing box into the aid tray:	☐	☐
Comment: _____		
The robot insert the second bearing box into the aid tray:	☐	☐
Comment: _____		
The robot correctly deliver the tray to the force fitting station:	☐	☐
Comment: _____		

Penalized Behaviors

The robot bumps into obstacles in the test bed: ☐ ☐ ☐ ☐ ☐

The robot drops an object (the object touches the ground): ☐ ☐ ☐ ☐ ☐

The robot stops working: ☐

Disqualifying Behaviors

The robot damages or destroys the objects requested to manipulate: ☐

The The robot damages the test bed: ☐

Benchmarking data delivered appropriately: ☐ yes / ☐ no

Team leader signature: _____

Referee signature: _____

TBM 2: Plate Drilling

Team name: _____

Referee I: _____, **Referee II:** _____

Date and time: _____

Duration: _____   ☐ **Timeout**

Achievements

Cooperate with CFH and Networked Devices througout the task   ☐
Comment: _____
This is marked when the robot is, at the least, receive its task from CFH AND operate quality control camera.

~~The robot collect the cover plate box from the shelves~~
~~The robot correctly grasp the plates~~
The robot pick up a cover plate from the conveyor belt exit ramp   ☐ ☐ ☐ ☐
Comment: _____
Lifting up the cover plate is consider a success.

~~The robot place the cover plate box to the correct workspace~~
~~The robot correctly sort the plates~~
The robot place the unusable cover plate inside the trash box container   ☐ ☐
Comment: _____

~~The robot perform the drilling process for faulty plates~~
The robot place a cover plate in the drilling machine   ☐ ☐
Comment: _____

The robot pick up a cover plate in the drilling machine   ☐ ☐
Comment: _____
Again, lifting up the cover plate is consider a success.

The robot place a cover plate inside the cover plate box   ☐ ☐
Comment: _____

Penalized Behaviors

The robot bumps into obstacles in the test bed: ☐ ☐ ☐ ☐ ☐

The robot collide with a networked device: ☐ ☐ ☐ ☐ ☐

Disqualifying Behaviors

~~The robot damages or destroys the objects requested to manipulate:~~
~~The robot damages the test bed:~~
The robot damages the test bed: ☐
Comment: _____
WARNING: A disqualifying behaviors discard all other achievement in the current task. Use it only when it is really necessary (e.g. cheating).

Benchmarking data delivered appropriately: ☐ yes / ☐ no

Team leader signature: _____

Referee signature: _____

RD: Very good first draft for TBM2

TBM 3: Fill a Box with Parts for Manual Assembly

Team name: _____

Referee I: _____, **Referee II:** _____

Date and time: _____

Duration: _____ ☐ **Timeout**

Achievements

	part 1	part 2	part 3	part 4	part 5
The robot correctly grasp object:	☐	☐	☐	☐	☐
The robot place object in the container:	☐	☐	☐	☐	☐

Comment: _____

	yes	no
The robot correctly grasp the container	☐	☐
The robot correctly place the container (complete with all parts)	☐	☐

Comment: _____

Penalized Behaviors

The robot bumps into obstacles in the test bed: ☐ ☐ ☐ ☐ ☐

The robot drops an object: ☐ ☐ ☐ ☐

The robot stops working: ☐

Disqualifying Behaviors

The robot damages or destroys the objects requested to manipulate: ☐

The robot damages the test bed: ☐

Benchmarking data delivered appropriately: ☐ yes / ☐ no

Team leader signature: _____

Referee signature: _____

FBM 1: Object Perception

Team name: _____

Referee I: _____, **Referee II:** _____

Date and time: _____

Notes:

- The duration is based on the referee stop watch.

- Timeout is checked when the robot cannot detect the object within the specified test duration.

- GT is the ground truth which is the information provided by the referee box.

- Object identifier:

    - EM-01(1)=aid tray, EM-02(2)=cover plate box
    - AX-01(4)=bearing box type A, AX-16(3)=bearing box type B
    - AX-02(6)=bearing, AX-09(7)=motor, AX-03(5)=axis

Run 1 Duration: _____   ☐ Timeout

Object Detection

GT	Container		Bearing Box		Transmission		
	EM-01(1)	EM-02(2)	AX-01(4)	AX-16(3)	AX-02(6)	AX-09(7)	AX-03(5)
Robot	Container		Bearing box		Transmission		
	EM-01(1)	EM-02(2)	AX-01(4)	AX-16(3)	AX-02(6)	AX-09(7)	AX-03(5)

Pose

GT	x	y	θ	Robot	x	y	θ

Comments: _____

Run 2 Duration: _____   ☐ Timeout

Object Detection

GT	Container		Bearing Box		Transmission		
	EM-01(1)	EM-02(2)	AX-01(4)	AX-16(3)	AX-02(6)	AX-09(7)	AX-03(5)
Robot	Container		Bearing box		Transmission		
	EM-01(1)	EM-02(2)	AX-01(4)	AX-16(3)	AX-02(6)	AX-09(7)	AX-03(5)

Pose

GT	x	y	θ	Robot	x	y	θ

Comments: _____

Run 3 Duration: ‗‗‗‗‗‗‗   ☐ Timeout

Object Detection

GT	Container		Bearing Box		Transmission		
	EM-01(1)	EM-02(2)	AX-01(4)	AX-16(3)	AX-02(6)	AX-09(7)	AX-03(5)
Robot	Container		Bearing box		Transmission		
	EM-01(1)	EM-02(2)	AX-01(4)	AX-16(3)	AX-02(6)	AX-09(7)	AX-03(5)

Pose

GT	x	y	θ	Robot	x	y	θ

Comments: ‗‗‗‗‗‗‗‗‗‗‗‗‗‗‗‗‗‗‗‗‗‗‗‗

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Run 4 Duration: ‗‗‗‗‗‗‗   ☐ Timeout

Object Detection

GT	Container		Bearing Box		Transmission		
	EM-01(1)	EM-02(2)	AX-01(4)	AX-16(3)	AX-02(6)	AX-09(7)	AX-03(5)
Robot	Container		Bearing box		Transmission		
	EM-01(1)	EM-02(2)	AX-01(4)	AX-16(3)	AX-02(6)	AX-09(7)	AX-03(5)

Pose

GT	x	y	θ	Robot	x	y	θ

Comments: ‗‗‗‗‗‗‗‗‗‗‗‗‗‗‗‗‗‗‗‗‗‗‗‗

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Run 5 Duration: ‗‗‗‗‗‗‗   ☐ Timeout

Object Detection

GT	Container		Bearing Box		Transmission		
	EM-01(1)	EM-02(2)	AX-01(4)	AX-16(3)	AX-02(6)	AX-09(7)	AX-03(5)
Robot	Container		Bearing box		Transmission		
	EM-01(1)	EM-02(2)	AX-01(4)	AX-16(3)	AX-02(6)	AX-09(7)	AX-03(5)

Pose

GT	x	y	θ	Robot	x	y	θ

Comments: ‗‗‗‗‗‗‗‗‗‗‗‗‗‗‗‗‗‗‗‗‗‗‗‗

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Run 6 Duration: _____ ☐ Timeout

Object Detection

GT	Container		Bearing Box		Transmission		
	EM-01(1)	EM-02(2)	AX-01(4)	AX-16(3)	AX-02(6)	AX-09(7)	AX-03(5)
Robot	Container		Bearing box		Transmission		
	EM-01(1)	EM-02(2)	AX-01(4)	AX-16(3)	AX-02(6)	AX-09(7)	AX-03(5)

Pose

GT	x	y	θ	Robot	x	y	θ

Comments: _____

_____

Run 7 Duration: _____ ☐ Timeout

Object Detection

GT	Container		Bearing Box		Transmission		
	EM-01(1)	EM-02(2)	AX-01(4)	AX-16(3)	AX-02(6)	AX-09(7)	AX-03(5)
Robot	Container		Bearing box		Transmission		
	EM-01(1)	EM-02(2)	AX-01(4)	AX-16(3)	AX-02(6)	AX-09(7)	AX-03(5)

Pose

GT	x	y	θ	Robot	x	y	θ

Comments: _____

_____

Run 8 Duration: _____ ☐ Timeout

Object Detection

GT	Container		Bearing Box		Transmission		
	EM-01(1)	EM-02(2)	AX-01(4)	AX-16(3)	AX-02(6)	AX-09(7)	AX-03(5)
Robot	Container		Bearing box		Transmission		
	EM-01(1)	EM-02(2)	AX-01(4)	AX-16(3)	AX-02(6)	AX-09(7)	AX-03(5)

Pose

GT	x	y	θ	Robot	x	y	θ

Comments: _____

_____

Run 9 Duration: _____ ☐ Timeout

Object Detection

GT	Container		Bearing Box		Transmission		
	EM-01(1)	EM-02(2)	AX-01(4)	AX-16(3)	AX-02(6)	AX-09(7)	AX-03(5)
Robot	Container		Bearing box		Transmission		
	EM-01(1)	EM-02(2)	AX-01(4)	AX-16(3)	AX-02(6)	AX-09(7)	AX-03(5)

Pose

GT	x	y	θ	Robot	x	y	θ

Comments: _____

_____

Run 10 Duration: _____ ☐ Timeout

Object Detection

GT	Container		Bearing Box		Transmission		
	EM-01(1)	EM-02(2)	AX-01(4)	AX-16(3)	AX-02(6)	AX-09(7)	AX-03(5)
Robot	Container		Bearing box		Transmission		
	EM-01(1)	EM-02(2)	AX-01(4)	AX-16(3)	AX-02(6)	AX-09(7)	AX-03(5)

Pose

GT	x	y	θ	Robot	x	y	θ

Comments: _____

_____

Benchmarking data delivered appropriately: ☐ yes / ☐ no

Team leader signature: _____

Referee signature: _____

FBM 2: Visual Servoing

Team name: _____

Referee I: _____, **Referee II:** _____

Date and time: _____

Notes:

- The duration for each run is based on the referee stop watch.

- Timeout is checked when the robot cannot grasp the object within the specified test duration.

- The sequence of objects which are used in each run is defined by the team.

- Objects: EM-01=aid tray orange, EM-02=cardbox black, AX-01=bearing box type A, AX-16=Bearing box type B, AX-02=bearing, AX-03=axis, AX-09=motor

Run 1 Duration: _____   ☐ Timeout

Object id: _____, Orientation: _____,   ☐ Success, ☐ Dropped, ☐ Missed

Comments: _____

_____

Run 2 Duration: _____   ☐ Timeout

Object id: _____, Orientation: _____,   ☐ Success, ☐ Dropped, ☐ Missed

Comments: _____

_____

Run 3 Duration: _____   ☐ Timeout

Object id: _____, Orientation: _____,   ☐ Success, ☐ Dropped, ☐ Missed

Comments: _____

_____

Run 4 Duration: _____   ☐ Timeout

Object id: _____, Orientation: _____,   ☐ Success, ☐ Dropped, ☐ Missed

Comments: _____

_____

Run 5 Duration: _____   ☐ Timeout

Object id: _____, Orientation: _____,   ☐ Success, ☐ Dropped, ☐ Missed

Comments: _____

_____

Run 6 Duration: _____   □ Timeout

Object id: _____, Orientation: _____,   □ Success, □ Dropped, □ Missed

Comments: _____

_____

Run 7 Duration: _____   □ Timeout

Object id: _____, Orientation: _____,   □ Success, □ Dropped, □ Missed

Comments: _____

_____

Benchmarking data delivered appropriately: □ yes / □ no

Team leader signature: _____

Referee signature: _____