TBM 1: Prepare Assembly Aid Tray for Force Fitting

Team nam	ne:			
Referee I:	, Referee II:			
Date and	time:			
Duration:	□ Timeout			
Achiever	nents			
	correctly grasp the assembly aid tray:		yes	no
	correctly grasp the first bearing box:			
	correctly grasp the second bearing box:			
	insert the first bearing box into the aid tray:			
	insert the second bearing box into the aid tray:			
	correctly deliver the tray to the force fitting station			
Penalize	d Behaviors			
The robot	bumps into obstacles in the test bed:			
The robot	drops an object (the object touches the ground):			
The robot	stops working:			
Disquali	fying Behaviors			
The robot	damages or destroys the objects requested to man	ipulate:		
The The r	obot damages the test bed:			
RD: Based	king data delivered appropriately: □ yes / □ on the discussion with JB and TF should be inclu to all FBM and TBM.)			
Team lead	er signature:			

Referee signature:	
G	

TBM 2: Plate Drilling

Team name:	
Referee I:, Referee II:	
Date and time:	
Duration: □ Timeout	
Notes on TBM 2 to teams/referee/organizer: The cover plates are organized in the conveyor belt with the order of unusable faulty-faulty (yes, specifically in this order). The reasoning is because processic cover plate is "simpler" than processing faulty ones. As such the only way to ensute have the same ordering of the cover plates.	ing unusable
Achievements	
1. Cooperate with CFH and Networked Devices througout the task	
Comment: 2. Benchmarking data is delivered appropriately Comment:	
Comment: The robot collect the cover plate box from the shelves The robot correctly grasp the plates The robot place the cover plate box to the correct workspace	
The robot correctly sort the plates 3.1 The robot pick up an unusable cover plate from the conveyor belt exit ramp 3.2 The robot place an unusable cover plate inside the trash box container 3.3 The robot collect one set of achievement 3.1 and 3.2 Comment:	
The robot perform the drilling process for faulty plates 4.1 The robot pick up a faulty cover plate from the conveyor belt exit ramp 4.2 The robot deliver a faulty cover plate to the drilling machine workstation 4.3 The robot inserted a faulty cover plate to the drilling machine 4.4 The robot collect one set of achievement 4.1, 4.2 and 4.3 (one set) Comment:	
5.1 The robot operate the drilling machine to fix a faulty cover plate 5.2 The robot pick up a perfect cover plate in the drilling machine 5.3 The robot place a perfect cover plate inside the cover plate box 5.4 The robot collect one set of achievement 5.1, 5.2 and 5.3 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:	
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: \square yes $/$ \square no	
RD: Based on the discussion with JB and TF should be included as an achiev	<i>r</i> emen
(applicable to all FBM and TBM.)	
Team leader signature:	
Referee signature:	

TBM 3: Fill a Box with Parts for Manual Assembly

Team name:	
Referee I:	, Referee II:
Date and time:	
Duration: □ Timeout	
Achievements	
The robot correctly grasp object:	part 1 part 2 part 3 part 4 part 5 \Box \Box \Box \Box
The robot place object in the container:	
Comment:	
The robot correctly grasp the container The robot correctly place the container (
Comment:	
Penalized Behaviors	
The robot bumps into obstacles in the te	test bed:
The robot drops an object:	
The robot stops working:	
Disqualifying Behaviors	
The robot damages or destroys the object	ects requested to manipulate: \Box
The robot damages the test bed:	
Benchmarking data delivered appropriate RD: Based on the discussion with JB and (applicable to all FBM and TBM.)	priately: □ yes / □ no d TF should be included as an achievement
Team leader signature:	
Referee signature:	

FBM 1: Object Perception

Referee	I:	, Re	feree II: _			
Date an	nd time:					
Notes:						
• Th	e duration is based on	the referee sto	p watch.			
	meout is checked when ration.	the robot ca	nnot detec	t the object	within the	specified test
• GT	is the ground truth w	which is the infe	ormation p	rovided by t	the referee b	OX.
• Ob	ject identifier:					
-	– EM-01(1)=aid tray,	EM-02(2) = cov	er plate bo	ΟX		
	- AX-01(4)=bearing b				me B	
	- AX-02(6)=bearing,	· -	` /	· ·	ров	
	1111 02(0) 50011118,	111 00(1) 11100	,01, 1111 00	(9) (1111)		
Run 1 I	Ouration:	☐ Timeout				
Object I	Detection					
CT	Container	Bearing	g Box		Transmissio	n
GT	EM-01(1) EM-02(2	()	AX-16(3)	AX-02(6)	AX-09(7)	AX-03(5)
Robot	Container	Bearin			Transmissio	
	EM-01(1) EM-02(2	AX-01(4)	AX-16(3)	AX-02(6)	AX-09(7)	AX-03(5)
Pose			11 11		T	
GT	х у	θ	Robot	X	У	θ
Commen	ts:					
Run 2 I	Ouration:	☐ Timeout				
Object I	Detection					
GT	Container	Bearing	_	II	Transmissio	
	EM-01(1) EM-02(2		AX-16(3)	AX-02(6)	AX-09(7)	AX-03(5)
Robot	$\begin{array}{ c c c }\hline Container\\\hline EM-01(1) & EM-02(2\\\hline \end{array}$	Bearin AX-01(4)	$\frac{\text{g box}}{\text{AX-16(3)}}$	AX-02(6)	$\frac{\text{Transmissio}}{\text{AX-09(7)}}$	n AX-03(5)
Pose			()	11 (2)		1 7
GT	x y	θ	Dolor	X	у	θ
C = 1	H		Robot		-	+

Joject L	Octoction							
	Detection		·		П			
GT	Conta		Bearin		III.	Transmission		
0.1	EM-01(1)	EM-02(2)	AX-01(4)	AX-16(3)	AX-02(6)	AX-09(7)	AX-03(5)	
Robot	Conta	ainer	Bearin	g box		Transmission	n	
TODOU	EM-01(1)	EM-02(2)	AX-01(4)	AX-16(3)	AX-02(6)	AX-09(7)	AX-03(5)	
Pose								
- CTF	X	у	θ	D 1 .	X	у	θ	
GT				Robot		V		
Common	its:							
Jonninen								
Run 4 I	Ouration:	Г] Timeout					
Object L	Detection							
GT	Container		Bearin	<u> </u>	-	Transmission		
01	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			
RODOL	EM-01(1)	EM-02(2)	AX-01(4)	AX-16(3)	AX-02(6)	AX-09(7)	AX-03(5)	
Pose					-11			
	37	177	θ		37	37	θ	
GT	X	У	0	Robot	X	У	U	
Commen	its:							
Run 5 I	Ouration:] Timeout					
Object I	Detection							
	Conta	ainer	Bearing Box		Transmission			
GT	EM-01(1)	EM-02(2)	AX-01(4)	$\frac{AX-16(3)}{AX-16(3)}$	AX-02(6)	AX-09(7)	$\frac{1}{\text{AX-03(5)}}$	
	Conta	` ,	Bearin	. ,		Transmission		
Robot	EM-01(1)	EM-02(2)	AX-01(4)	$\frac{\text{AX-16}(3)}{\text{AX-16}(3)}$	AX-02(6)	AX-09(7)	$\frac{1}{ AX-03(5) }$	
	DW-01(1)	DW-02(2)	1121-01(4)	7171-10(0)	1111-02(0)	1171-03(1)	1171-05(0)	
Pose			θ		v	37	θ	
Pose GT	X	У	0	Robot	X	У	U	

	$\frac{\text{Detection}}{\ }$	ainer	Bearin	g Roy		Transmissio	<u> </u>
GT	EM-01(1)		AX-01(4)	$\frac{\text{g box}}{\text{AX-16(3)}}$	AX-02(6)	AX-09(7)	AX-03(5)
	Cont	` '	Bearin	. ,	` ′	Transmissio	
Robot	EM-01(1)	$\frac{\text{EM-02}(2)}{\text{EM-02}(2)}$	AX-01(4)	$\frac{\text{AX-16}(3)}{\text{AX-16}(3)}$	AX-02(6)	AX-09(7)	AX-03(5)
Pose		2111 02(2)	1111 01(1)	1111 10(0)	1111 02(0)	1111 00(1)	1111 00(0)
	X	у	θ		X	у	θ
GT	A .	J J		Robot	A	J J	
 Comme	nts:						
Run 7	Duration:] Timeout				
Object 1	Detection						
OTT.	Cont	ainer	er Bearing Box			Transmissio	n
GT	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		Transmissio	n
πουσι	EM-01(1)	EM-02(2)	AX-01(4)	AX-16(3)	AX-02(6)	AX-09(7)	AX-03(5)
Pose							
GT	X	У	θ	Robot	X	У	θ
Comme	nts:						
Run 8	Duration:	Г] Timeout				
			1 Imeout				
Jbject 1	Detection						
GT	Cont		Bearing Box		Transmission		
O I	EM-01(1)	EM-02(2)	AX-01(4)	AX-16(3)	AX-02(6)	AX-09(7)	AX-03(5)
———	Container		Bearing box AX-01(4) AX-16(3)			Transmission	
Robot	EM 01(1)		AA-01(4)	AX-16(3)	AX-02(6)	AX-09(7)	AX-03(5)
Robot	EM-01(1)	EM-02(2)					
	EM-01(1)	EMI-02(2)					
Robot	EM-01(1)	у у	θ	Robot	X	у	θ

Run 9 I	Ouration:		l Timeout				
Object I	Detection						
C/T/	Container		Bearing Box			Transmission	n
GT	EM-01(1)	EM-02(2)	AX-01(4)	AX-16(3)	AX-02(6)	AX-09(7)	AX-03(5)
D 1	Container		Bearin	ig box		Transmission	n
Robot	EM-01(1)	EM-02(2)	AX-01(4)	AX-16(3)	AX-02(6)	AX-09(7)	AX-03(5)
Pose							
GT	X	У	θ	Robot	X	У	θ
				100000			
Commer	nts:						
Run 10	Duration: _		☐ Timeout				
Object I	Detection						
GT	Container Bearing Box		g Box	Transmission			
GI	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		
10000	EM-01(1)	EM-02(2)	AX-01(4)	AX-16(3)	AX-02(6)	AX-09(7)	AX-03(5)
Pose							
GT	X	у	θ	Robot	X	у	θ
				10000			
Commer	nts:						
	narking dat						
	ed on the dis			Should be	included as	an achieven	ient
	eader signat						
	signature:						

FBM 2: Visual Servoing

Team name:		
Referee I:	, Refere	ee II:
Date and time:		
Notes:		
• The duration for each	ch run is based on the re	eferee stop watch.
• Timeout is checked duration.	when the robot canno	t grasp the object within the specified test
• The sequence of objection	ects which are used in e	each run is defined by the team.
v	0 0 /	cardbox black, AX-01=bearing box type A, eg, AX-03=axis, AX-09=motor
Run 1 Duration:	Timeout	
		, \square Success, \square Dropped, \square Missed
Comments:		
Run 2 Duration:	□ Timeout	
Object id:	, Orientation:	, \square Success, \square Dropped, \square Missed
Comments:		
Run 3 Duration:	Timeout	
Object id:	, Orientation:	, \square Success, \square Dropped, \square Missed
Comments:		
Run 4 Duration:	□ Timeout	
Object id:	, Orientation:	, \square Success, \square Dropped, \square Missed
Comments:		
Run 5 Duration:	□ Timeout	
Object id:	, Orientation:	, \square Success, \square Dropped, \square Missed
Comments:		

Run 6 Duration:		
Object id:	, Orientation:, \square Success, \square Dropped, \square Missed	l
Run 7 Duration:	□ Timeout	
Object id:	, Orientation:, \square Success, \square Dropped, \square Missed	ł
Comments:		
Benchmarking data d	livered appropriately: □ yes / □ no ion with JB and TF should be included as an achievement ad TBM.)	
Team leader signatur	:	
Referee signature:		