TBM 2: Survey the building and search for missing workers (Land +Air)

Team name: _____ REBOT _____

Referee I (Land): ___ FRANK ___ , Referee II (Land): ___ MICHAEL ___

Referee I (Air): ___ FRAN ___ , Referee II (Air): _____

Date (DD/MM/YYYY): ___ 21/9/17 ___ , Time (24:00): ___ 09:00 ___

Duration: ___ 37 min ___ (Max. 45 min) ☐ Timeout

Achievements

Set A1: Outdoors

	A1.1	A1.2	A1.3
An **aerial robot** reaches the waypoints (WPs) within a radius of 5 m in **autonomous navigation.** *Waypoints can be reached in no specific order and the team can suggest additional waypoints to their flight plan*	WP1 A ☑	WP2 A ☑	WP3 A ☑
	A1.4	A1.5	
A **ground robot** reaches the waypoints within a precision of 3m.	WP1 L ☑	WP2 L ☑	
	A1.6	A1.7	
A **ground robot** reaches the WPs within a precision of 3 m in **autonomous navigation.**	WP3 L ☐	WP4 L ☐	

Within 30 minutes of start of the run, a robot reports the correct location (within radius 5 m) of the missing worker outside the building.	A1.8 ☑
An **aerial robot** deploys the first-aid kit (within radius 2 m) from the worker outside the building.	A1.9 ☐
The **aerial robot** transfers the first-aid kit to the land robot outside the building. *(It must be directly deployed on the platform or within a radius of 1 m from it)*	A1.10 ☐

	Outdoor damages (building)		
The robots recognise the damages on the wall of the building. *(Each damage can only be scored once).*	A1.11 D1 ☐ Robot Domain: _____	A1.12 D2 ☐ Robot Domain: _____	A1.13 D3 ☐ Robot Domain: _____

A robot localises the **unobstructed entrance** in real-time in automatic way.	A1.14 ☐

Robots localise the **obstructed entrances.**	A1.15 E1 ☐ Robot Domain: _____	A1.16 E2 ☐ Robot Domain: _____

Robots find a **safe and unobstructed path** to the unblocked entry of the building for a ground robot. (The path is shown on the map).	A1.17 ☐
From the starting point, a ground robot follows a safe path (collision free from obstacles and structures) to the unobstructed building entrance.	A1.18 ☐
Robots build an outdoor map of the land pipes area with OPIs (North-West side).	A1.19 ☐
Robots build an outdoor map of the land pipes area with OPIs (North-East side).	A1.20 ☐
Robots build an outdoor map of the land pipes area with OPIs (South-West side).	A1.21 ☐
Robots build an outdoor map of the land pipes area with OPIs (South-East side).	A1.22 ☐

Set A2: Indoors

A **ground robot** enters the building through the unobstructed door.	A2.1 ☐
Within 30 minutes of start of the run, a **ground robot** reports the correct location of the missing worker inside the building.	A2.2 ☐
The missing worker is detected in real-time in an automatic way.	A2.3 ☐
A **ground robot** deploys the first-aid kit (within radius 1 m) from the worker inside the building.	A2.4 ☐

	Indoor damages	
The **ground robot(s)** recognise the damages on the wall of the building. *(Each damage can only be scored once).*	D1 ☐ A2.5	D2 ☐ A2.6

A **ground robot** finds a safe and unobstructed path to the machine room from the building entrance. (The path is shown on the map).	A2.7 ☐
From the building entrance, a **ground robot** follows a safe path (collision free from obstacles and structures) to the machine room.	A2.8 ☐
A **ground robot** recognises the machine room sign in real-time and in automatic way.	A2.9 ☐
A **ground robot** enters the machine room.	A2.10 ☐

	Indoor map	
The ground robot(s) builds a geometric indoor map of the building. *(Use the best map or a combination of ground robots maps).*	Area 1 ☐ A2.11	Area 2 ☐ A2.12

Set A3: Cooperation

The **aerial robot** communicates to the **ground robot** the safe path to the building.	A3.1☐

Set A4: General

The **aerial robots** return to the landing area once all the tasks have been done.	A4.1☑
The **aerial robots** return to the landing area once all the tasks have been done.	A4.2☐
The **ground robots** return to the landing area once all the tasks have been done.	A4.3☐
The **ground robot(s)** transmits live position and images/video to the control station during the run.	A4.4☐
The **aerial robot(s)** transmits live position and images/video to the control station during the run.	A4.5☑

Penalised Behaviours

The robot needs manual intervention during a run (e.g. the robot is stuck):	
Aerial robot	PB1 ☐ (max. 1)
Ground robot 1	PB2 ☑ ☑ (max. 2)
Ground robot 2	PB3 ☐ ☐ (max. 2)

The ground robot leaves the operating area.	PB4 ☐ (max. 1)
The ground robot changes batteries or is refuelled.	PB5 ☐ (max. 1)
The ground robot-1 hits the obstacles.	PB6 ☐ ☐ ☐ ☐
The ground robot-2 hits the obstacles.	PB6 ☐ ☐ ☐ ☐
The aerial robot does not keep the safety distance of 5 m with the building wall.	PB7 ☐ ☐ (max. 2)

Disqualifying Behaviours

A robot damages competition arena (including the obstacles).	DB1 ☐
A robot does not conform to safety requirements for the competition.	DB2 ☐
A robot impacts the sensitive dune area.	DB3 ☐
A robot enters any of the upper floors of the building.	DB4 ☐
The aerial robot leaves the flight volumes defined by the organisation.	DB5 ☐
The aerial robot impacts the building.	DB6 ☐
The aerial robot enters the building.	DB7 ☐

Comment: _____

WARNING: A disqualifying behaviour discards all other achievements in the current task. Use it only when it is really necessary (e.g. cheating).

Benchmarking data delivered appropriately: ☐ yes / ☐ no

(Time is 60 min after the end of the team's time-slot, formats as described in the TBM)

Team leader signature: _____

Referee signature: _____

TBM 2: Survey the building and search for missing workers (Land +Air)

Team name: ENSTA BRETAGNE

Referee I (Land): HANS ARTHUR , Referee II (Land): ALAN

Referee I (Air): FRAN , Referee II (Air): _____

Date (DD/MM/YYYY): 20/9/17 , Time (24:00): 11:30

Duration: _____ (Max. 45 min) ☐ Timeout

Achievements

Set A1: Outdoors

An **aerial robot** reaches the waypoints (WPs) within a radius of 5 m in **autonomous navigation.** *Waypoints can be reached in no specific order and the team can suggest additional waypoints to their flight plan*	A1.1 WP1 A ☑	A1.2 WP2 A ☑	A1.3 WP3 A ☑
A **ground robot** reaches the waypoints within a precision of 3m.	A1.4 WP1 L ☑	A1.5 WP2 L ☑	
A **ground robot** reaches the WPs within a precision of 3 m in **autonomous navigation.**	A1.6 WP3 L ☐	A1.7 WP4 L ☐	

Within 30 minutes of start of the run, a robot reports the correct location (within radius 5 m) of the missing worker outside the building.	A1.8 ☐
An **aerial robot** deploys the first-aid kit (within radius 2 m) from the worker outside the building.	A1.9 ☐
The **aerial robot** transfers the first-aid kit to the land robot outside the building. *(It must be directly deployed on the platform or within a radius of 1 m from it)*	A1.10 ☐

	Outdoor damages (building)		
The robots recognise the damages on the wall of the building. *(Each damage can only be scored once).*	A1.11 D1 ☐ Robot Domain: _____	A1.12 D2 ☐ Robot Domain: _____	A1.13 D3 ☐ Robot Domain: _____

A robot localises the **unobstructed entrance** in real-time in automatic way.	A1.14 ☐

Robots localise the **obstructed entrances.**	A1.15 E1 ☑ Robot Domain: LAND	A1.16 E2 ☑ Robot Domain: LAND

Robots find a **safe and unobstructed path** to the unblocked entry of the building for a ground robot. (The path is shown on the map).	A1.17 ☑
From the starting point, a ground robot follows a safe path (collision free from obstacles and structures) to the unobstructed building entrance.	A1.18 ☑
Robots build an outdoor map of the land pipes area with OPIs (North-West side).	A1.19 ☐
Robots build an outdoor map of the land pipes area with OPIs (North-East side).	A1.20 ☐
Robots build an outdoor map of the land pipes area with OPIs (South-West side).	A1.21 ☐
Robots build an outdoor map of the land pipes area with OPIs (South-East side).	A1.22 ☐

Set A2: Indoors

A **ground robot** enters the building through the unobstructed door.	A2.1 ☑
Within 30 minutes of start of the run, a **ground robot** reports the correct location of the missing worker inside the building.	A2.2 ☐
The missing worker is detected in real-time in an automatic way.	A2.3 ☐
A **ground robot** deploys the first-aid kit (within radius 1 m) from the worker inside the building.	A2.4 ☐

	Indoor damages	
The **ground robot(s)** recognise the damages on the wall of the building. *(Each damage can only be scored once).*	D1 ☐ A2.5	D2 ☐ A2.6

A **ground robot** finds a safe and unobstructed path to the machine room from the building entrance. (The path is shown on the map).	A2.7 ☐
From the building entrance, a **ground robot** follows a safe path (collision free from obstacles and structures) to the machine room.	A2.8 ☐
A **ground robot** recognises the machine room sign in real-time and in automatic way.	A2.9 ☐
A **ground robot** enters the machine room.	A2.10 ☑

	Indoor map	
The ground robot(s) builds a geometric indoor map of the building. *(Use the best map or a combination of ground robots maps).*	Area 1 ☐ A2.11	Area 2 ☐ A2.12

Set A3: Cooperation

The **aerial robot** communicates to the **ground robot** the safe path to the building.	A3.1 ☐

Set A4: General

The **aerial robots** return to the landing area once all the tasks have been done.	A4.1 ☑
The **aerial robots** return to the landing area once all the tasks have been done.	A4.2 ☐
The **ground robots** return to the landing area once all the tasks have been done.	A4.3 ☐
The **ground robot(s)** transmits live position and images/video to the control station during the run.	A4.4 ☑
The **aerial robot(s)** transmits live position and images/video to the control station during the run.	A4.5 ☐

Penalised Behaviours

The robot needs manual intervention during a run (e.g. the robot is stuck):	
Aerial robot	PB1 ☐ (max. 1)
Ground robot 1	PB2 ☑ ☐ (max. 2)
Ground robot 2	PB3 ☐ ☐ (max. 2)

The ground robot leaves the operating area.	PB4 ☐ (max. 1)
The ground robot changes batteries or is refuelled.	PB5 ☐ (max. 1)
The ground robot-1 hits the obstacles.	PB6 ☐ ☐ ☐ ☐
The ground robot-2 hits the obstacles.	PB6 ☐ ☐ ☐ ☐
The aerial robot does not keep the safety distance of 5 m with the building wall.	PB7 ☐ ☐ (max. 2)

Disqualifying Behaviours

A robot damages competition arena (including the obstacles).	DB1 ☐
A robot does not conform to safety requirements for the competition.	DB2 ☐
A robot impacts the sensitive dune area.	DB3 ☐
A robot enters any of the upper floors of the building.	DB4 ☐
The aerial robot leaves the flight volumes defined by the organisation.	DB5 ☐
The aerial robot impacts the building.	DB6 ☐
The aerial robot enters the building.	DB7 ☐

Comment: _____ Flying robot v. close (over) flight volumes. _____

WARNING: A disqualifying behaviour discards all other achievements in the current task. Use it only when it is really necessary (e.g. cheating).

Benchmarking data delivered appropriately: ☐ yes / ☐ no

(Time is 60 min after the end of the team's time-slot, formats as described in the TBM)

Team leader signature: ___FPB_____

Referee signature: _____

TBM 2: Survey the building and search for missing workers (Land +Air)

Team name: _ENSTA TEAM_

Referee I (Land): _BERND_ , Referee II (Land): _FRANK_

Referee I (Air): _FRAN_ , Referee II (Air): _____

Date (DD/MM/YYYY): _20/9/17_ , Time (24:00): _16:30_

Duration: _____ (Max. 45 min) ☑ Timeout (land)

Achievements

Set A1: Outdoors

	A1.1	A1.2	A1.3
An **aerial robot** reaches the waypoints (WPs) within a radius of 5 m in **autonomous navigation.** *Waypoints can be reached in no specific order and the team can suggest additional waypoints to their flight plan*	WP1 A ☑	WP2 A ☑	WP3 A ☑
	A1.4	A1.5	
A **ground robot** reaches the waypoints within a precision of 3m.	WP1 L ☑	WP2 L ☑	
	A1.6	A1.7	
A **ground robot** reaches the WPs within a precision of 3 m in **autonomous navigation.**	WP3 L ☐	WP4 L ☐	

Within 30 minutes of start of the run, a robot reports the correct location (within radius 5 m) of the missing worker outside the building.	A1.8 ☐
An **aerial robot** deploys the first-aid kit (within radius 2 m) from the worker outside the building.	A1.9 ☐
The **aerial robot** transfers the first-aid kit to the land robot outside the building. *(It must be directly deployed on the platform or within a radius of 1 m from it)*	A1.10 ☐

	Outdoor damages (building)		
The robots recognise the damages on the wall of the building. *(Each damage can only be scored once).*	A1.11 D1 ☑ Robot Domain: LAND	A1.12 D2 ☐ Robot Domain: _____	A1.13 D3 ☐ Robot Domain: _____

A robot localises the **unobstructed entrance** in real-time in automatic way.	A1.14 ☐

Robots localise the **obstructed entrances**.	A1.15 E1 ☑ Robot Domain: LAND	A1.16 E2 ☑ Robot Domain: LAND

Robots find a **safe and unobstructed path** to the unblocked entry of the building for a ground robot. (The path is shown on the map).	A1.17 ☑
From the starting point, a ground robot follows a safe path (collision free from obstacles and structures) to the unobstructed building entrance.	A1.18 ☑
Robots build an outdoor map of the land pipes area with OPIs (North-West side).	A1.19 ☐
Robots build an outdoor map of the land pipes area with OPIs (North-East side).	A1.20 ☐
Robots build an outdoor map of the land pipes area with OPIs (South-West side).	A1.21 ☐
Robots build an outdoor map of the land pipes area with OPIs (South-East side).	A1.22 ☐

Set A2: Indoors

A **ground robot** enters the building through the unobstructed door.	A2.1 ☑
Within 30 minutes of start of the run, a **ground robot** reports the correct location of the missing worker inside the building.	A2.2 ☐
The missing worker is detected in real-time in an automatic way.	A2.3 ☐
A **ground robot** deploys the first-aid kit (within radius 1 m) from the worker inside the building.	A2.4 ☐

	Indoor damages	
The ground robot(s) recognise the damages on the wall of the building. *(Each damage can only be scored once).*	D1 ☐ A2.5	D2 ☐ A2.6

A **ground robot** finds a safe and unobstructed path to the machine room from the building entrance. (The path is shown on the map).	A2.7 ☑
From the building entrance, a **ground robot** follows a safe path (collision free from obstacles and structures) to the machine room.	A2.8 ☑
A **ground robot** recognises the machine room sign in real-time and in automatic way.	A2.9 ☐
A **ground robot** enters the machine room.	A2.10 ☑

	Indoor map	
The ground robot(s) builds a geometric indoor map of the building. *(Use the best map or a combination of ground robots maps).*	Area 1 ☐ A2.11	Area 2 ☐ A2.12

Set A3: Cooperation

The **aerial robot** communicates to the **ground robot** the safe path to the building.	A3.1 ☐

Set A4: General

The **aerial robots** return to the landing area once all the tasks have been done.	A4.1 ☑
The **aerial robots** return to the landing area once all the tasks have been done.	A4.2 ☐
The **ground robots** return to the landing area once all the tasks have been done.	A4.3 ☐
The **ground robot(s)** transmits live position and images/video to the control station during the run.	A4.4 ☑
The **aerial robot(s)** transmits live position and images/video to the control station during the run.	A4.5 ☐

Penalised Behaviours

The robot needs manual intervention during a run (e.g. the robot is stuck):	
Aerial robot	PB1 ☐ (max. 1)
Ground robot 1	PB2 ☑ ☐ (max. 2)
Ground robot 2	PB3 ☐ ☐ (max. 2)

The ground robot leaves the operating area.	PB4 ☐ (max. 1)
The ground robot changes batteries or is refuelled.	PB5 ☐ (max. 1)
The ground robot-1 hits the obstacles.	PB6 ☐ ☐ ☐ ☐
The ground robot-2 hits the obstacles.	PB6 ☐ ☐ ☐ ☐
The aerial robot does not keep the safety distance of 5 m with the building wall.	PB7 ☐ ☐ (max. 2)

Disqualifying Behaviours

A robot damages competition arena (including the obstacles).	DB1 ☐
A robot does not conform to safety requirements for the competition.	DB2 ☐
A robot impacts the sensitive dune area.	DB3 ☐
A robot enters any of the upper floors of the building.	DB4 ☐
The aerial robot leaves the flight volumes defined by the organisation.	DB5 ☐
The aerial robot impacts the building.	DB6 ☐
The aerial robot enters the building.	DB7 ☐

Comment: _FLYING ROBOT MAY HAVE LEFT FLIGHT VOLUMES._

WARNING: A disqualifying behaviour discards all other achievements in the current task. Use it only when it is really necessary (e.g. cheating).

Benchmarking data delivered appropriately: ☐ yes / ☐ no

(Time is 60 min after the end of the team's time-slot, formats as described in the TBM)

Team leader signature: _____A. CHAPOUTOT_____

Referee signature: _____

TBM 2: Survey the building and search for missing workers (Land +Air)

Team name: _____ETH_____

Referee I (Land): _____MICHAEL_____, Referee II (Land):_____BERND_____

Referee I (Air): _____BOGDAN_____, Referee II (Air):_____

Date (DD/MM/YYYY): _____20/9/17_____, Time (24:00): _____09 : 30_____

Duration: _____ (Max. 45 min) ☑ Timeout
(LAND)

Achievements

Set A1: Outdoors

	A1.1	A1.2	A1.3
An **aerial robot** reaches the waypoints (WPs) within a radius of 5 m in **autonomous navigation.** *Waypoints can be reached in no specific order and the team can suggest additional waypoints to their flight plan*	WP1 A ☐	WP2 A ☐	WP3 A ☐
	A1.4	A1.5	
A **ground robot** reaches the waypoints within a precision of 3m.	WP1 L ☑	WP2 L ☑	
	A1.6	A1.7	
A **ground robot** reaches the WPs within a precision of 3 m in **autonomous navigation.**	WP3 L ☑	WP4 L ☐	

Within 30 minutes of start of the run, a robot reports the correct location (within radius 5 m) of the missing worker outside the building.	A1.8 ☐
An **aerial robot** deploys the first-aid kit (within radius 2 m) from the worker outside the building.	A1.9 ☐
The **aerial robot** transfers the first-aid kit to the land robot outside the building. *(It must be directly deployed on the platform or within a radius of 1 m from it)*	A1.10 ☐

	Outdoor damages (building)		
The robots recognise the damages on the wall of the building. *(Each damage can only be scored once).*	A1.11 D1 ☐ Robot Domain: _____	A1.12 D2 ☐ Robot Domain: _____	A1.13 D3 ☐ Robot Domain: _____

A robot localises the **unobstructed entrance** in real-time in automatic way.	A1.14 ☐

Robots localise the **obstructed entrances.**	A1.15 E1 ☐ Robot Domain: _____	A1.16 E2 ☐ Robot Domain: _____

Robots find a **safe and unobstructed path** to the unblocked entry of the building for a ground robot. (The path is shown on the map).	A1.17 ☐
From the starting point, a ground robot follows a safe path (collision free from obstacles and structures) to the unobstructed building entrance.	A1.18 ☐
Robots build an outdoor map of the land pipes area with OPIs (North-West side).	A1.19 ☐
Robots build an outdoor map of the land pipes area with OPIs (North-East side).	A1.20 ☐
Robots build an outdoor map of the land pipes area with OPIs (South-West side).	A1.21 ☐
Robots build an outdoor map of the land pipes area with OPIs (South-East side).	A1.22 ☐

Set A2: Indoors

A **ground robot** enters the building through the unobstructed door.	A2.1 ☐
Within 30 minutes of start of the run, a **ground robot** reports the correct location of the missing worker inside the building.	A2.2 ☐
The missing worker is detected in real-time in an automatic way.	A2.3 ☐
A **ground robot** deploys the first-aid kit (within radius 1 m) from the worker inside the building.	A2.4 ☐

	Indoor damages	
The ground robot(s) recognise the damages on the wall of the building. *(Each damage can only be scored once).*	D1 ☐ A2.5	D2 ☐ A2.6

A **ground robot** finds a safe and unobstructed path to the machine room from the building entrance. (The path is shown on the map).	A2.7 ☐
From the building entrance, a **ground robot** follows a safe path (collision free from obstacles and structures) to the machine room.	A2.8 ☐
A **ground robot** recognises the machine room sign in real-time and in automatic way.	A2.9 ☐
A **ground robot** enters the machine room.	A2.10 ☐

	Indoor map	
	Area 1 ☐	Area 2 ☐
The ground robot(s) builds a geometric indoor map of the building. *(Use the best map or a combination of ground robots maps).*	A2.11	A2.12

Set A3: Cooperation

The **aerial robot** communicates to the **ground robot** the safe path to the building.	A3.1 ☐

Set A4: General

The **aerial robots** return to the landing area once all the tasks have been done.	A4.1 ☑
~~The aerial robots return to the landing area once all the~~ tasks have been done.	A4.2 ☐
The **ground robots** return to the landing area once all the tasks have been done.	A4.3 ☐
The **ground robot(s)** transmits live position and images/video to the control station during the run.	A4.4 ☐
The **aerial robot(s)** transmits live position and images/video to the control station during the run.	A4.5 ☐

Penalised Behaviours

The robot needs manual intervention during a run (e.g. the robot is stuck):	
Aerial robot	PB1 ☑ (max. 1)
Ground robot 1	PB2 ☑ ☐ (max. 2)
Ground robot 2	PB3 ☐ ☐ (max. 2)

The ground robot leaves the operating area.	PB4 ☐ (max. 1)
The ground robot changes batteries or is refuelled.	PB5 ☐ (max. 1)
The ground robot-1 hits the obstacles.	PB6 ☐ ☐ ☐ ☐
The ground robot-2 hits the obstacles.	PB6 ☐ ☐ ☐ ☐
The aerial robot does not keep the safety distance of 5 m with the building wall.	PB7 ☐ ☐ (max. 2)

Disqualifying Behaviours

A robot damages competition arena (including the obstacles).	DB1 ☐
A robot does not conform to safety requirements for the competition.	DB2 ☐
A robot impacts the sensitive dune area.	DB3 ☐
A robot enters any of the upper floors of the building.	DB4 ☐
The aerial robot leaves the flight volumes defined by the organisation.	DB5 ☐
The aerial robot impacts the building.	DB6 ☐
The aerial robot enters the building.	DB7 ☐

Comment: _____

WARNING: A disqualifying behaviour discards all other achievements in the current task. Use it only when it is really necessary (e.g. cheating).

Benchmarking data delivered appropriately: ☐ yes / ☐ no

(Time is 60 min after the end of the team's time-slot, formats as described in the TBM)

Team leader signature: _____

Referee signature: _____

TBM 2: Survey the building and search for missing workers (Land +Air)

Team name: IMM + PIOMBINO

Referee I (Land): MICHAEL , Referee II (Land): HANS - ARTHUR

Referee I (Air): FRAM , Referee II (Air):

Date (DD/MM/YYYY): 20/9/17 , Time (24:00): 15:30

Duration: _____ (Max. 45 min) ☐ Timeout

Achievements

Set A1: Outdoors

check log Carlos

An **aerial robot** reaches the waypoints (WPs) within a radius of 5 m in **autonomous navigation.** *Waypoints can be reached in no specific order and the team can suggest additional waypoints to their flight plan*	A1.1 WP1 A ☐	A1.2 WP2 A ☐	A1.3 WP3 A ☐
A **ground robot** reaches the waypoints within a precision of 3m.	A1.4 WP1 L ☑	A1.5 WP2 L ☑	
A **ground robot** reaches the WPs within a precision of 3 m in **autonomous navigation.** ~6.5m	A1.6 WP3 L ☑	A1.7 WP4 L ☑	

Within 30 minutes of start of the run, a robot reports the correct location (within radius 5 m) of the missing worker outside the building.	A1.8 ☑
An **aerial robot** deploys the first-aid kit (within radius 2 m) from the worker outside the building.	A1.9 ☐
The **aerial robot** transfers the first-aid kit to the land robot outside the building. *(It must be directly deployed on the platform or within a radius of 1 m from it)* ~6.5m	A1.10 ☐

	Outdoor damages (building)		
The robots recognise the damages on the wall of the building. *(Each damage can only be scored once).*	A1.11 D1 ☑ Robot Domain: LAND	A1.12 D2 ☐ Robot Domain: _____	A1.13 D3 ☐ Robot Domain: _____

A robot localises the **unobstructed entrance** in real-time in automatic way.	A1.14 ☑

Robots localise the **obstructed entrances.**	A1.15 E1 ☑ Robot Domain: LAND	A1.16 E2 ☑ Robot Domain: LAND

Robots find a **safe and unobstructed path** to the unblocked entry of the building for a ground robot. (The path is shown on the map).	A1.17 ☑
From the starting point, a ground robot follows a safe path (collision free from obstacles and structures) to the unobstructed building entrance.	A1.18 ☑
Robots build an outdoor map of the land pipes area with OPIs (North-West side).	A1.19 ☑
Robots build an outdoor map of the land pipes area with OPIs (North-East side).	A1.20 ☑
Robots build an outdoor map of the land pipes area with OPIs (South-West side).	A1.21 ☐
Robots build an outdoor map of the land pipes area with OPIs (South-East side).	A1.22 ☐

Set A2: Indoors

A **ground robot** enters the building through the unobstructed door.	A2.1 ☑
Within 30 minutes of start of the run, a **ground robot** reports the correct location of the missing worker inside the building.	A2.2 ☑
The missing worker is detected in real-time in an automatic way.	A2.3 ☑
A **ground robot** deploys the first-aid kit (within radius 1 m) from the worker inside the building.	A2.4 ☐

	Indoor damages	
The ground robot(s) recognise the damages on the wall of the building. *(Each damage can only be scored once).*	D1 ☐ A2.5	D2 ☐ A2.6

A **ground robot** finds a safe and unobstructed path to the machine room from the building entrance. (The path is shown on the map).	A2.7 ☑
From the building entrance, a **ground robot** follows a safe path (collision free from obstacles and structures) to the machine room.	A2.8 ☑
A **ground robot** recognises the machine room sign in real-time and in automatic way.	A2.9 ☑
A **ground robot** enters the machine room.	A2.10 ☑

	Indoor map	
	Area 1 ☐	Area 2 ☐
The ground robot(s) builds a geometric indoor map of the building. *(Use the best map or a combination of ground robots maps).*	A2.11	A2.12

Set A3: Cooperation

The **aerial robot** communicates to the **ground robot** the safe path to the building.	A3.1 ☐

Set A4: General

The **aerial robots** return to the landing area once all the tasks have been done.	A4.1 ☑
~~The **aerial robots** return to the landing area once all the tasks have been done.~~	A4.2 ☐
The **ground robots** return to the landing area once all the tasks have been done.	A4.3 ☐
The **ground robot(s)** transmits live position and images/video to the control station during the run.	A4.4 ☑
The **aerial robot(s)** transmits live position and images/video to the control station during the run.	A4.5 ☑

Penalised Behaviours

The robot needs manual intervention during a run (e.g. the robot is stuck):	
Aerial robot	PB1 ☐ (max. 1)
Ground robot 1	PB2 ☐ ☐ (max. 2)
Ground robot 2	PB3 ☐ ☐ (max. 2)

The ground robot leaves the operating area.	PB4 ☐ (max. 1)
The ground robot changes batteries or is refuelled.	PB5 ☐ (max. 1)
The ground robot-1 hits the obstacles.	PB6 ☐ ☐ ☐ ☐
The ground robot-2 hits the obstacles.	PB6 ☐ ☐ ☐ ☐
The aerial robot does not keep the safety distance of 5 m with the building wall.	PB7 ☐ ☐ (max. 2)

Disqualifying Behaviours

A robot damages competition arena (including the obstacles).	DB1 ☐
A robot does not conform to safety requirements for the competition.	DB2 ☐
A robot impacts the sensitive dune area.	DB3 ☐
A robot enters any of the upper floors of the building.	DB4 ☐
The aerial robot leaves the flight volumes defined by the organisation.	DB5 ☐
The aerial robot impacts the building.	DB6 ☐
The aerial robot enters the building.	DB7 ☐

Comment: _____Dangerous (low) flying._____

WARNING: A disqualifying behaviour discards all other achievements in the current task. Use it only when it is really necessary (e.g. cheating).

Benchmarking data delivered appropriately: ☐ yes / ☐ no

(Time is 60 min after the end of the team's time-slot, formats as described in the TBM)

Team leader signature: _____

Referee signature: _____

TBM 2: Survey the building and search for missing workers (Land +Air)

Team name: ___RAPTORS___

Referee I (Land): ___MICHAEL___ , Referee II (Land): ___HANS - ARTHUR___

Referee I (Air): ___FRAN___ , Referee II (Air):_____

Date (DD/MM/YYYY): ___20/9/17___ , Time (24:00): ___14:30___

Duration: _____ (Max. 45 min) ☑ Timeout

Achievements

Set A1: Outdoors

An **aerial robot** reaches the waypoints (WPs) within a radius of 5 m in **autonomous navigation.** *Waypoints can be reached in no specific order and the team can suggest additional waypoints to their flight plan*	A1.1 WP1 A ☐	A1.2 WP2 A ☐	A1.3 WP3 A ☐
A **ground robot** reaches the waypoints within a precision of 3m.	A1.4 WP1 L ☑	A1.5 WP2 L ☑	
A **ground robot** reaches the WPs within a precision of 3 m in **autonomous navigation.**	A1.6 WP3 L ☐	A1.7 WP4 L ☐	

Within 30 minutes of start of the run, a robot reports the correct location (within radius 5 m) of the missing worker outside the building. ⟨33 min⟩	A1.8 ☐
An **aerial robot** deploys the first-aid kit (within radius 2 m) from the worker outside the building.	A1.9 ☑
The **aerial robot** transfers the first-aid kit to the land robot outside the building. *(It must be directly deployed on the platform or within a radius of 1 m from it)*	A1.10 ☑

	Outdoor damages (building)		
The robots recognise the damages on the wall of the building. *(Each damage can only be scored once).*	A1.11 D1 ☑ Robot Domain: LAND	A1.12 D2 ☑ Robot Domain: LAND	A1.13 D3 ☑ Robot Domain: LAND

A robot localises the **unobstructed entrance** in real-time in automatic way.	A1.14 ☑

Robots localise the **obstructed entrances.**	A1.15 E1 ☑ Robot Domain: LAND	A1.16 E2 ☑ Robot Domain: LAND

Robots find a **safe and unobstructed path** to the unblocked entry of the building for a ground robot. (The path is shown on the map).	A1.17 ☑
From the starting point, a ground robot follows a safe path (collision free from obstacles and structures) to the unobstructed building entrance.	A1.18 ☑
Robots build an outdoor map of the land pipes area with OPIs (North-West side).	A1.19 ☐
Robots build an outdoor map of the land pipes area with OPIs (North-East side).	A1.20 ☐
Robots build an outdoor map of the land pipes area with OPIs (South-West side).	A1.21 ☐
Robots build an outdoor map of the land pipes area with OPIs (South-East side).	A1.22 ☐

Set A2: Indoors

A **ground robot** enters the building through the unobstructed door.	A2.1 ☑
Within 30 minutes of start of the run, a **ground robot** reports the correct location of the missing worker inside the building.	A2.2 ☐
The missing worker is detected in real-time in an automatic way.	A2.3 ☐
A **ground robot** deploys the first-aid kit (within radius 1 m) from the worker inside the building.	A2.4 ☐

	Indoor damages	
The ground robot(s) recognise the damages on the wall of the building. *(Each damage can only be scored once).*	D1 ☐ A2.5	D2 ☐ A2.6

A **ground robot** finds a safe and unobstructed path to the machine room from the building entrance. (The path is shown on the map).	A2.7 ☑
From the building entrance, a **ground robot** follows a safe path (collision free from obstacles and structures) to the machine room.	A2.8 ☑
A **ground robot** recognises the machine room sign in real-time and in automatic way.	A2.9 ☑
A **ground robot** enters the machine room.	A2.10 ☑

	Indoor map	
	Area 1 ☑	Area 2 ☐
The ground robot(s) builds a geometric indoor map of the building. *(Use the best map or a combination of ground robots maps).*	A2.11	A2.12

Set A3: Cooperation

The **aerial robot** communicates to the **ground robot** the safe path to the building.	A3.1 ☐

Set A4: General

The **aerial robots** return to the landing area once all the tasks have been done.	A4.1 ☑
The **aerial robots** return to the landing area once all the tasks have been done.	A4.2 ☐
The **ground robots** return to the landing area once all the tasks have been done.	A4.3 ☐
The **ground robot(s)** transmits live position and images/video to the control station during the run.	A4.4 ☑
The **aerial robot(s)** transmits live position and images/video to the control station during the run.	A4.5 ☑

Penalised Behaviours

The robot needs manual intervention during a run (e.g. the robot is stuck):	
Aerial robot	PB1 ☐ (max. 1)
Ground robot 1	PB2 ☐ ☐ (max. 2)
Ground robot 2	PB3 ☐ ☐ (max. 2)

The ground robot leaves the operating area.	PB4 ☐ (max. 1)
The ground robot changes batteries or is refuelled.	PB5 ☐ (max. 1)
The ground robot-1 hits the obstacles.	PB6 ☐ ☐ ☐ ☐
The ground robot-2 hits the obstacles.	PB6 ☐ ☐ ☐ ☐
The aerial robot does not keep the safety distance of 5 m with the building wall.	PB7 ☐ ☐ (max. 2)

Disqualifying Behaviours

A robot damages competition arena (including the obstacles).	DB1 ☐
A robot does not conform to safety requirements for the competition.	DB2 ☐
A robot impacts the sensitive dune area.	DB3 ☐
A robot enters any of the upper floors of the building.	DB4 ☐
The aerial robot leaves the flight volumes defined by the organisation.	DB5 ☐
The aerial robot impacts the building.	DB6 ☐
The aerial robot enters the building.	DB7 ☐

Comment: _____

WARNING: A disqualifying behaviour discards all other achievements in the current task. Use it only when it is really necessary (e.g. cheating).

Benchmarking data delivered appropriately: ☐ yes / ☐ no

(Time is 60 min after the end of the team's time-slot, formats as described in the TBM)

Team leader signature: _Mateusz tuler (LAND)_____

Referee signature: _____

TBM 2: Survey the building and search for missing workers (Land +Air)

Team name: _TELEROB + ISEP_

Referee I (Land): _HANS - ARTHUR_ , Referee II (Land): _ALAN_

Referee I (Air): _BOGDAN_ , Referee II (Air): _____

Date (DD/MM/YYYY): _20|9|17_ , Time (24:00): _10:30_

Duration: _40 mins_ (Max. 45 min) ☐ Timeout

Achievements

Set A1: Outdoors

	A1.1	A1.2	A1.3
An **aerial robot** reaches the waypoints (WPs) within a radius of 5 m in **autonomous navigation.** *Waypoints can be reached in no specific order and the team can suggest additional waypoints to their flight plan*	WP1 A ☑	WP2 A ☐	WP3 A ☐
	A1.4	A1.5	
A **ground robot** reaches the waypoints within a precision of 3m.	WP1 L ☑	WP2 L ☑	
	A1.6	A1.7	
A **ground robot** reaches the WPs within a precision of 3 m in **autonomous navigation.**	WP3 L ☐	WP4 L ☐	

Within 30 minutes of start of the run, a robot reports the correct location (within radius 5 m) of the missing worker outside the building.	A1.8 ☑
An **aerial robot** deploys the first-aid kit (within radius 2 m) from the worker outside the building.	A1.9 ☐
The **aerial robot** transfers the first-aid kit to the land robot outside the building. *(It must be directly deployed on the platform or within a radius of 1 m from it)*	A1.10 ☐

	Outdoor damages (building)		
The robots recognise the damages on the wall of the building. *(Each damage can only be scored once).*	A1.11 D1 ☑ Robot Domain: LAND	A1.12 D2 ☑ Robot Domain: LAND	A1.13 D3 ☑ Robot Domain: LAND

A robot localises the **unobstructed entrance** in real-time in automatic way.	A1.14 ☐

Robots localise the **obstructed entrances.**	A1.15 E1 ☑ Robot Domain: LAND	A1.16 E2 ☑ Robot Domain: LAND

Robots find a **safe and unobstructed path** to the unblocked entry of the building for a ground robot. (The path is shown on the map).	A1.17 ☑
From the starting point, a ground robot follows a safe path (collision free from obstacles and structures) to the unobstructed building entrance.	A1.18 ☑
Robots build an outdoor map of the land pipes area with OPIs (North-West side).	A1.19 ☐
Robots build an outdoor map of the land pipes area with OPIs (North-East side).	A1.20 ☐
Robots build an outdoor map of the land pipes area with OPIs (South-West side).	A1.21 ☐
Robots build an outdoor map of the land pipes area with OPIs (South-East side).	A1.22 ☐

Set A2: Indoors

A **ground robot** enters the building through the unobstructed door.	A2.1 ☑
Within 30 minutes of start of the run, a **ground robot** reports the correct location of the missing worker inside the building.	A2.2 ☑
The missing worker is detected in real-time in an automatic way.	A2.3 ☐
A **ground robot** deploys the first-aid kit (within radius 1 m) from the worker inside the building.	A2.4 ☐

	Indoor damages	
The ground robot(s) recognise the damages on the wall of the building. *(Each damage can only be scored once).*	D1 ☐ A2.5	D2 ☐ A2.6

A **ground robot** finds a safe and unobstructed path to the machine room from the building entrance. (The path is shown on the map).	A2.7 ☑
From the building entrance, a **ground robot** follows a safe path (collision free from obstacles and structures) to the machine room.	A2.8 ☑
A **ground robot** recognises the machine room sign in real-time and in automatic way.	A2.9 ☐
A **ground robot** enters the machine room.	A2.10 ☑

	Indoor map	
The ground robot(s) builds a geometric indoor map of the building. *(Use the best map or a combination of ground robots maps).*	Area 1 ☑ A2.11	Area 2 ☑ A2.12

Set A3: Cooperation

The **aerial robot** communicates to the **ground robot** the safe path to the building.	A3.1 ☐

Set A4: General

The **aerial robots** return to the landing area once all the tasks have been done.	A4.1 ☐
The **aerial robots** return to the landing area once all the tasks have been done.	A4.2 ☐
The **ground robots** return to the landing area once all the tasks have been done.	A4.3 ☑
The **ground robot(s)** transmits live position and images/video to the control station during the run.	A4.4 ☑
The **aerial robot(s)** transmits live position and images/video to the control station during the run.	A4.5 ☐

Penalised Behaviours

The robot needs manual intervention during a run (e.g. the robot is stuck):	
Aerial robot	PB1 ☐ (max. 1)
Ground robot 1	PB2 ☐ ☐ (max. 2)
Ground robot 2	PB3 ☐ ☐ (max. 2)

The ground robot leaves the operating area.	PB4 ☐ (max. 1)
The ground robot changes batteries or is refuelled.	PB5 ☐ (max. 1)
The ground robot-1 hits the obstacles.	PB6 ☐ ☐ ☐ ☐
The ground robot-2 hits the obstacles.	PB6 ☐ ☐ ☐ ☐
The aerial robot does not keep the safety distance of 5 m with the building wall.	PB7 ☐ ☐ (max. 2)

Disqualifying Behaviours

A robot damages competition arena (including the obstacles).	DB1 ☐
A robot does not conform to safety requirements for the competition.	DB2 ☐
A robot impacts the sensitive dune area.	DB3 ☐
A robot enters any of the upper floors of the building.	DB4 ☐
The aerial robot leaves the flight volumes defined by the organisation.	DB5 ☐
The aerial robot impacts the building.	DB6 ☐
The aerial robot enters the building.	DB7 ☐

Comment: _____

WARNING: A disqualifying behaviour discards all other achievements in the current task. Use it only when it is really necessary (e.g. cheating).

Benchmarking data delivered appropriately: ☐ yes / ☐ no

(Time is 60 min after the end of the team's time-slot, formats as described in the TBM)

Team leader signature: _____

Referee signature: _____