FBM 2: Object Recognition Functionality (Land + Air)

Team name: _____IMM + PIOMBINO_____

Referee I (Land): _____, Referee II (Land):_____

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

FBM-2 is calculated from data collected in the combined air and land robot challenge, **TBM-2: Survey the building and search for missing workers.**

TBM-2 Date (DD/MM/YYYY): _____, TBM-2 Time (24:00): _____

Duration TBM-2: _____ (Max. 45 min) ☐ Timeout

Data provided

Each team was required to provide a KML file, or equivalent, to the referees with the following data:

The location (GPS coordinates) of each OPIs found	☒
The type of each OPI found	☒
An image (or equivalent scan) of the OPI as confirmation that the OPI was found	☒

Scoring calculation

The maximum number of Objects of Potential Interest (OPIs) in TBM-2 is 11.

Number of OPIs correctly identified	
OPI	Data from TBM-2
Missing worker outside the building	1
Missing worker inside the building	1
Obstructed entrances (max. 2)	2
Unblocked entrance (max. 1)	1
Damage to the outdoor walls (max. 3)	1
Machine room entrance	1
Damage to the indoor walls (max. 2)	0
Total correctly identified objects	7

Note: incorrectly identified OPIs are ignored since some are manually and some autonomously detected.

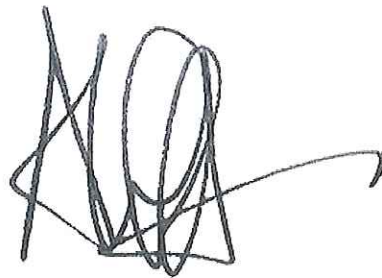|	
Total OPIs found	7
Precision	1
Recall	0.63636
Index	0.77778

Note: For details on FBM-2 calculations (i.e. precision, recall, etc.) refer to the ERL Emergency Robots Rulebook.

Overall score FBM-2: _____0.77778_____ **(Calculated post-competition)**

Referees that have calculated and reviewed the overall score:

Referee I: _____Professor Alan Winfield_____

Referee II: _____Dr. Francisco Javier Pérez Grau_____

Referee signature: _____

FBM 2: Object Recognition Functionality (Land + Air)

Team name: _____BEBOT + HSR_____

Referee I (Land): _____, Referee II (Land):_____

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

FBM-2 is calculated from data collected in the combined air and land robot challenge, **TBM-2: Survey the building and search for missing workers.**

TBM-2 Date (DD/MM/YYYY): _____, TBM-2 Time (24:00): _____

Duration TBM-2: _____ (Max. 45 min) ☐ Timeout

Data provided

Each team was required to provide a KML file, or equivalent, to the referees with the following data:

The location (GPS coordinates) of each OPIs found	☒
The type of each OPI found	☒
An image (or equivalent scan) of the OPI as confirmation that the OPI was found	☒

Scoring calculation

The maximum number of Objects of Potential Interest (OPIs) in TBM-2 is 11.

Number of OPIs correctly identified	
OPI	Data from TBM-2
Missing worker outside the building	1
Missing worker inside the building	0
Obstructed entrances (max. 2)	0
Unblocked entrance (max. 1)	0
Damage to the outdoor walls (max. 3)	0
Machine room entrance	0
Damage to the indoor walls (max. 2)	0
Total correctly identified objects	1

Note: incorrectly identified OPIs are ignored since some are manually and some autonomously detected.

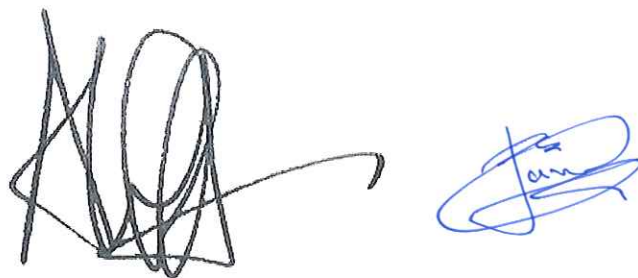| Total OPIs found	1
Precision	1
Recall	0.09091
Index	0.16667

Note: For details on FBM-2 calculations (i.e. precision, recall, etc.) refer to the ERL Emergency Robots Rulebook.

Overall score FBM-2: _____0.16667_____ **(Calculated post-competition)**

Referees that have calculated and reviewed the overall score:

Referee I: _____Professor Alan Winfield_____

Referee II: _____Dr. Francisco Javier Pérez Grau_____

Referee signature: _____

FBM 2: Object Recognition Functionality (Land + Air)

Team name: _____ ENSTA BRETAGNE _____

Referee I (Land): _____, Referee II (Land):_____

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

FBM-2 is calculated from data collected in the combined air and land robot challenge, **TBM-2: Survey the building and search for missing workers.**

TBM-2 Date (DD/MM/YYYY): _____, TBM-2 Time (24:00): _____

Duration TBM-2: _____ (Max. 45 min) ☐ Timeout

Data provided

Each team was required to provide a KML file, or equivalent, to the referees with the following data:

The location (GPS coordinates) of each OPIs found	☒
The type of each OPI found	☒
An image (or equivalent scan) of the OPI as confirmation that the OPI was found	☒

Scoring calculation

The maximum number of Objects of Potential Interest (OPIs) in TBM-2 is 11.

Number of OPIs correctly identified	
OPI	Data from TBM-2
Missing worker outside the building	O
Missing worker inside the building	O
Obstructed entrances (max. 2)	2
Unblocked entrance (max. 1)	1
Damage to the outdoor walls (max. 3)	O
Machine room entrance	1
Damage to the indoor walls (max. 2)	O
Total correctly identified objects	4

Note: incorrectly identified OPIs are ignored since some are manually and some autonomously detected.

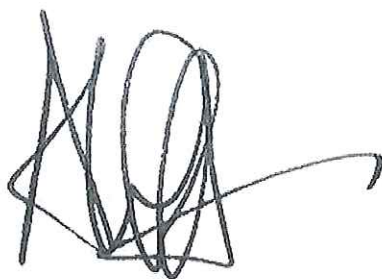|	
Total OPIs found	4
Precision	1
Recall	0.36364
Index	0.53333

Note: For details on FBM-2 calculations (i.e. precision, recall, etc.) refer to the ERL Emergency Robots Rulebook.

Overall score FBM-2: _____0.53333_____ **(Calculated post-competition)**

Referees that have calculated and reviewed the overall score:

Referee I: _____Professor Alan Winfield_____

Referee II: _____Dr. Francisco Javier Pérez Grau_____

Referee signature: _____

FBM 2: Object Recognition Functionality (Land + Air)

Team name: _____TELEROB + ISEP_____

Referee I (Land): _____, Referee II (Land): _____

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

FBM-2 is calculated from data collected in the combined air and land robot challenge, **TBM-2: Survey the building and search for missing workers.**

TBM-2 Date (DD/MM/YYYY): _____, TBM-2 Time (24:00): _____

Duration TBM-2: _____ (Max. 45 min) ☐ Timeout

Data provided

Each team was required to provide a KML file, or equivalent, to the referees with the following data:

The location (GPS coordinates) of each OPIs found	☒
The type of each OPI found	☒
An image (or equivalent scan) of the OPI as confirmation that the OPI was found	☒

Scoring calculation

The maximum number of Objects of Potential Interest (OPIs) in TBM-2 is 11.

Number of OPIs correctly identified	
OPI	Data from TBM-2
Missing worker outside the building	1
Missing worker inside the building	1
Obstructed entrances (max. 2)	2
Unblocked entrance (max. 1)	1
Damage to the outdoor walls (max. 3)	3
Machine room entrance	1
Damage to the indoor walls (max. 2)	0
Total correctly identified objects	9

Note: incorrectly identified OPIs are ignored since some are manually and some autonomously detected.

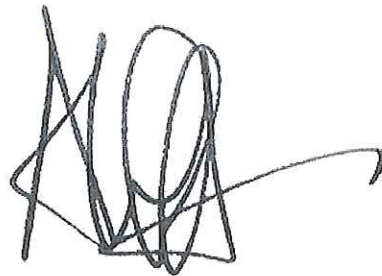|	
Total OPIs found	9
Precision	1
Recall	0.81818
Index	0.9

Note: For details on FBM-2 calculations (i.e. precision, recall, etc.) refer to the ERL Emergency Robots Rulebook.

Overall score FBM-2: _____0.9_____ **(Calculated post-competition)**

Referees that have calculated and reviewed the overall score:

Referee I: _____Professor Alan Winfield_____

Referee II: _____Dr. Francisco Javier Pérez Grau_____

Referee signature: _____

FBM 2: Object Recognition Functionality (Land + Air)

Team name: _____ENSTA TEAM_____

Referee I (Land): _____, Referee II (Land):_____

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

FBM-2 is calculated from data collected in the combined air and land robot challenge, **TBM-2: Survey the building and search for missing workers.**

TBM-2 Date (DD/MM/YYYY): _____, TBM-2 Time (24:00): _____

Duration TBM-2: _____ (Max. 45 min) ☐ Timeout

Data provided

Each team was required to provide a KML file, or equivalent, to the referees with the following data:

The location (GPS coordinates) of each OPIs found	☒
The type of each OPI found	☒
An image (or equivalent scan) of the OPI as confirmation that the OPI was found	☒

Scoring calculation

The maximum number of Objects of Potential Interest (OPIs) in TBM-2 is 11.

Number of OPIs correctly identified	
OPI	Data from TBM-2
Missing worker outside the building	0
Missing worker inside the building	0
Obstructed entrances (max. 2)	2
Unblocked entrance (max. 1)	1
Damage to the outdoor walls (max. 3)	1
Machine room entrance	1
Damage to the indoor walls (max. 2)	0
Total correctly identified objects	5

Note: incorrectly identified OPIs are ignored since some are manually and some autonomously detected.

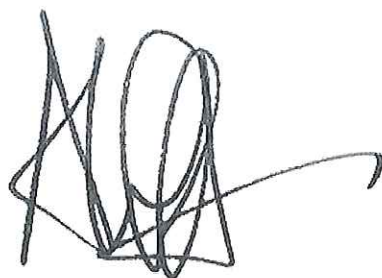| Total OPIs found	5
Precision	1
Recall	0.45455
Index	0.625

Note: For details on FBM-2 calculations (i.e. precision, recall, etc.) refer to the ERL Emergency Robots Rulebook.

Overall score FBM-2: _____0.625_____ **(Calculated post-competition)**

Referees that have calculated and reviewed the overall score:

Referee I: _____Professor Alan Winfield_____

Referee II: _____Dr. Francisco Javier Pérez Grau_____

Referee signature: _____

FBM 2: Object Recognition Functionality (Land + Air)

Team name: _____ ETH _____

Referee I (Land): _____ , Referee II (Land):_____

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

FBM-2 is calculated from data collected in the combined air and land robot challenge, **TBM-2: Survey the building and search for missing workers.**

TBM-2 Date (DD/MM/YYYY): _____ , TBM-2 Time (24:00): _____

Duration TBM-2: _____ (Max. 45 min) ☐ Timeout

Data provided

Each team was required to provide a KML file, or equivalent, to the referees with the following data:

The location (GPS coordinates) of each OPIs found	☐
The type of each OPI found	☐
An image (or equivalent scan) of the OPI as confirmation that the OPI was found	☐

Scoring calculation

The maximum number of Objects of Potential Interest (OPIs) in TBM-2 is 11.

Number of OPIs correctly identified	
OPI	Data from TBM-2
Missing worker outside the building	O
Missing worker inside the building	O
Obstructed entrances (max. 2)	O
Unblocked entrance (max. 1)	O
Damage to the outdoor walls (max. 3)	O
Machine room entrance	O
Damage to the indoor walls (max. 2)	O
Total correctly identified objects	O

Note: incorrectly identified OPIs are ignored since some are manually and some autonomously detected.

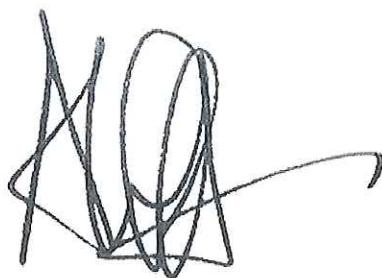|	
Total OPIs found	0
Precision	0
Recall	0
Index	0

Note: For details on FBM-2 calculations (i.e. precision, recall, etc.) refer to the ERL Emergency Robots Rulebook.

Overall score FBM-2: _____∅_____ **(Calculated post-competition)**

Referees that have calculated and reviewed the overall score:

Referee I: _____Professor Alan Winfield_____

Referee II: _____Dr. Francisco Javier Pérez Grau_____

Referee signature: _____

FBM 2: Object Recognition Functionality (Land + Air)

Team name: _____RAPTORS_____

Referee I (Land): _____, Referee II (Land):_____

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

FBM-2 is calculated from data collected in the combined air and land robot challenge, **TBM-2: Survey the building and search for missing workers.**

TBM-2 Date (DD/MM/YYYY): _____, TBM-2 Time (24:00): _____

Duration TBM-2: _____ (Max. 45 min) ☐ Timeout

Data provided

Each team was required to provide a KML file, or equivalent, to the referees with the following data:

The location (GPS coordinates) of each OPIs found	☒
The type of each OPI found	☒
An image (or equivalent scan) of the OPI as confirmation that the OPI was found	☒

Scoring calculation

The maximum number of Objects of Potential Interest (OPIs) in TBM-2 is 11.

Number of OPIs correctly identified	
OPI	Data from TBM-2
Missing worker outside the building	1
Missing worker inside the building	0
Obstructed entrances (max. 2)	2
Unblocked entrance (max. 1)	1
Damage to the outdoor walls (max. 3)	3
Machine room entrance	1
Damage to the indoor walls (max. 2)	0
Total correctly identified objects	8

Note: incorrectly identified OPIs are ignored since some are manually and some autonomously detected.

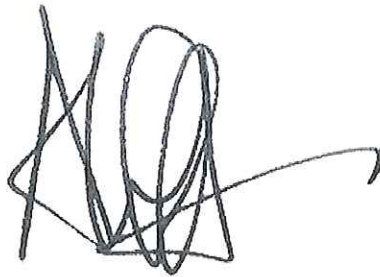|	
Total OPIs found	8
Precision	1
Recall	0.72727
Index	0.84211

Note: For details on FBM-2 calculations (i.e. precision, recall, etc.) refer to the ERL Emergency Robots Rulebook.

Overall score FBM-2: ___0.84211___ **(Calculated post-competition)**

Referees that have calculated and reviewed the overall score:

Referee I: _____Professor Alan Winfield_____

Referee II: _____Dr. Francisco Javier Pérez Grau_____

Referee signature: _____