

Robot Fleets for Highly Effective Agriculture and Forestry Management (RHEA)

FP7-NMP-245986

Figures



Fig. 1.1. The RHEA fleet: Base station, two GMUs out of three and the two AMUs

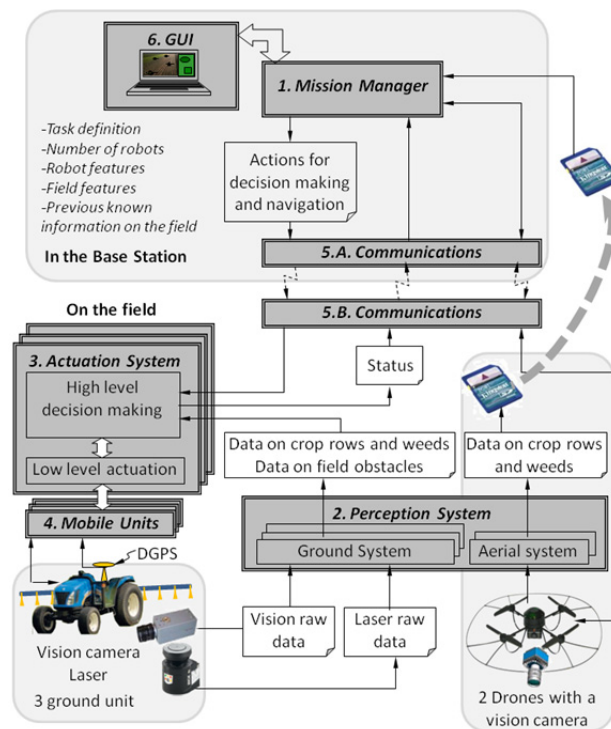


Fig. 1.2. RHEA system architecture



Fig. 1.3. Fleet missions in different fields

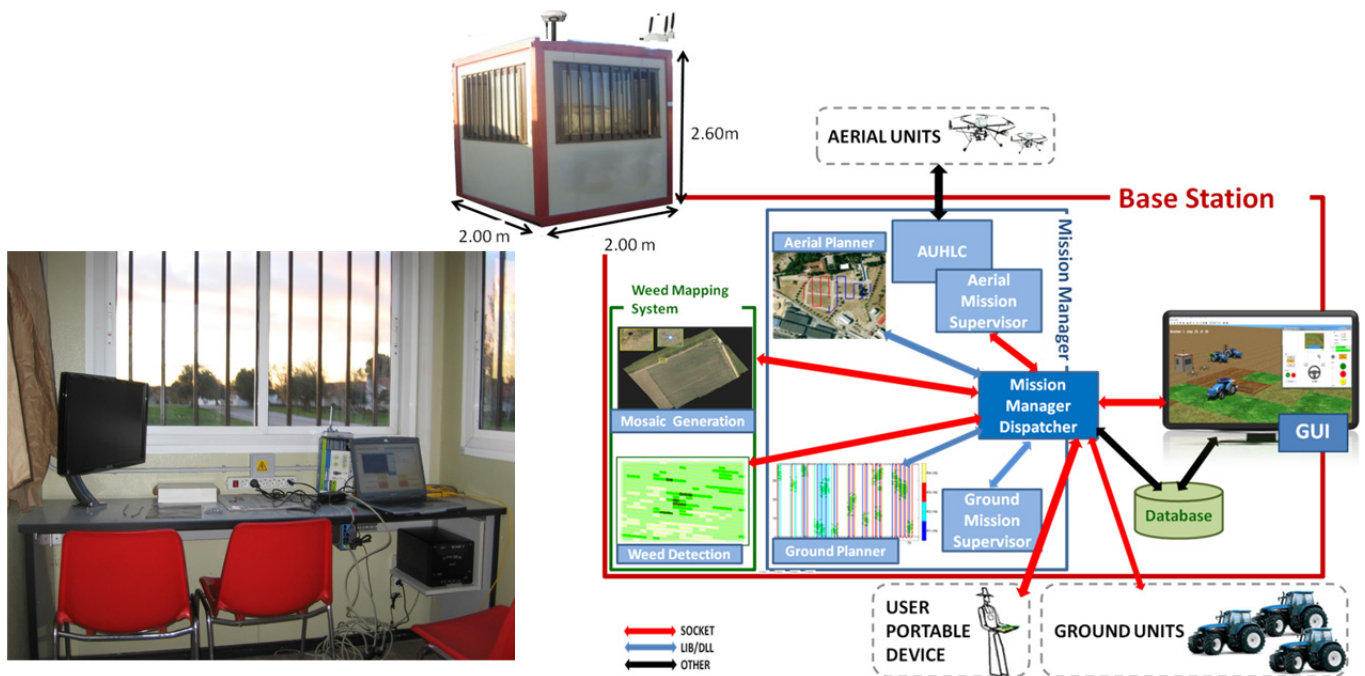


Figure 2.1. Base Station and its system architecture

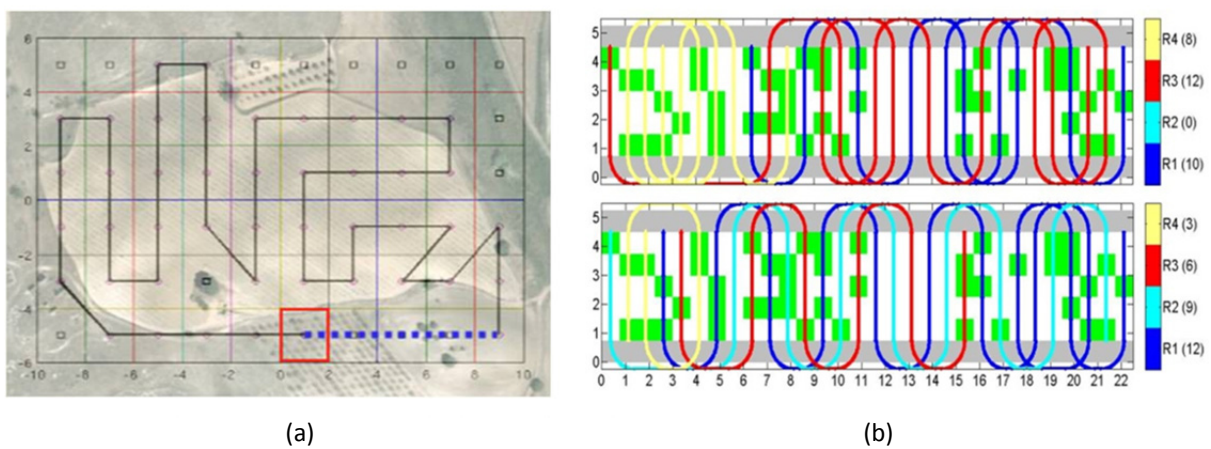


Fig. 2.2: (a) A plan for aerial units; (b) Two examples of plans for the fleet of ground vehicles

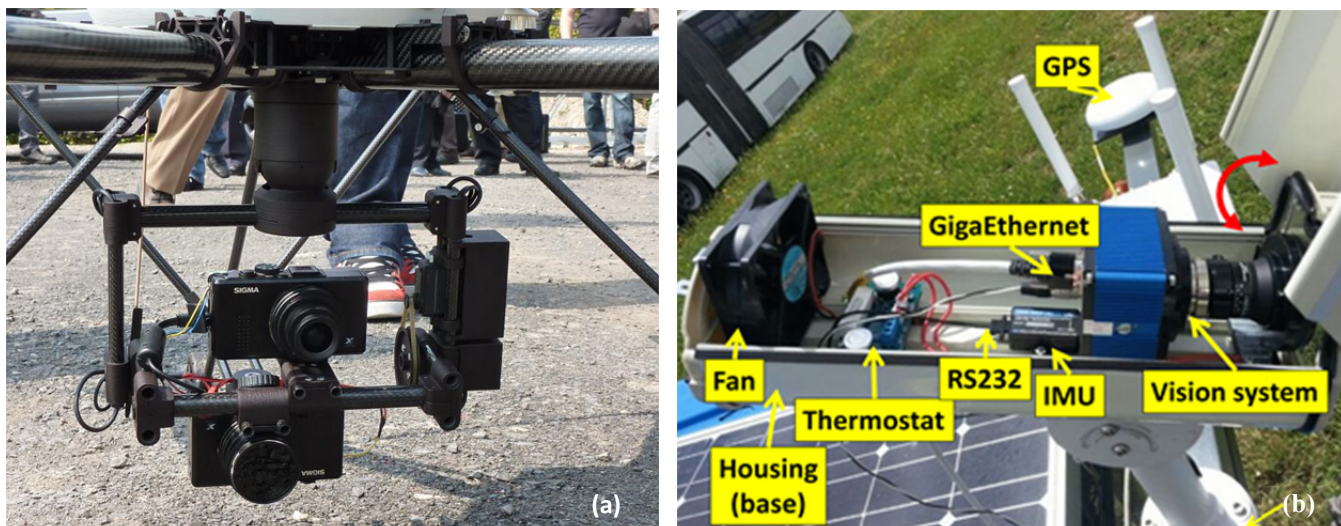


Fig. 3.1: (a) Remote Perception System installed on an aerial unit and (b) Ground Perception System installed on a GMU



Fig. 4.1: (a) Patch sprayer; (b) Canopy sprayer and (c) Mechanical and thermal device



Figure 5.1. The 3 Ground Mobile Units

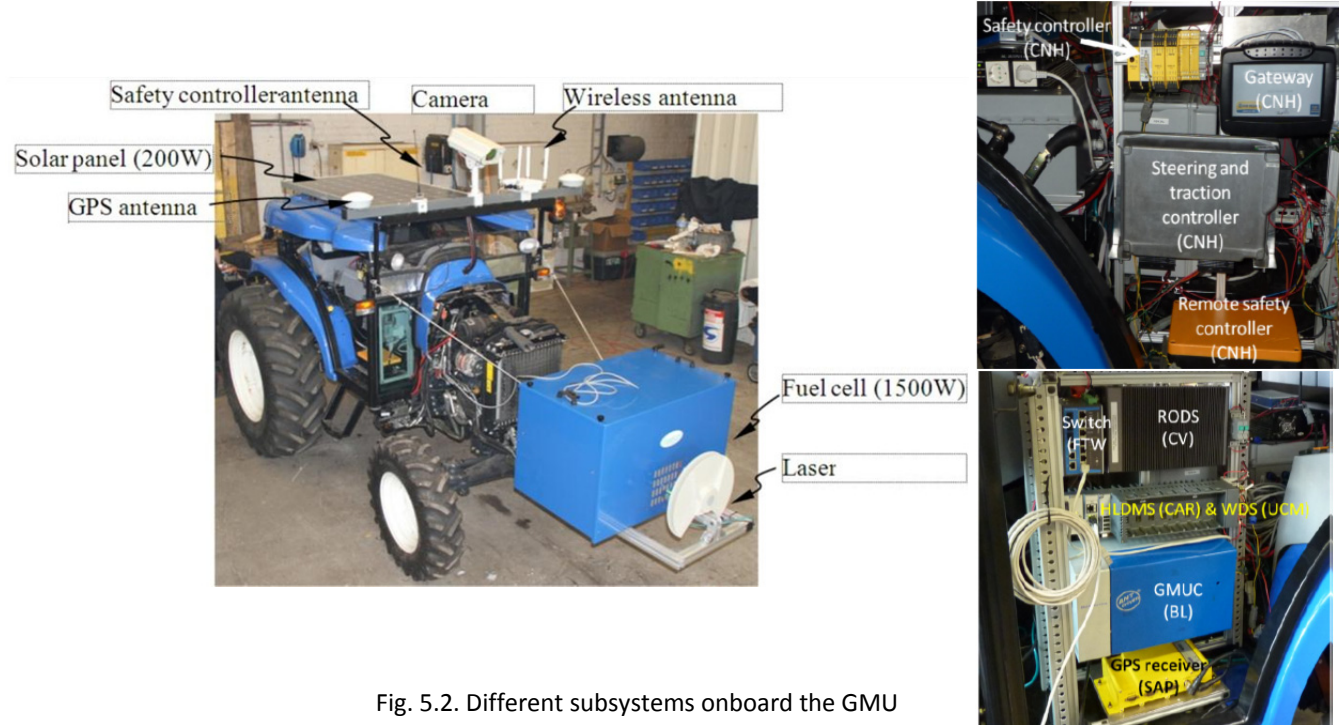


Fig. 5.2. Different subsystems onboard the GMU



Figure 5.3. Aerial Mobile Unit

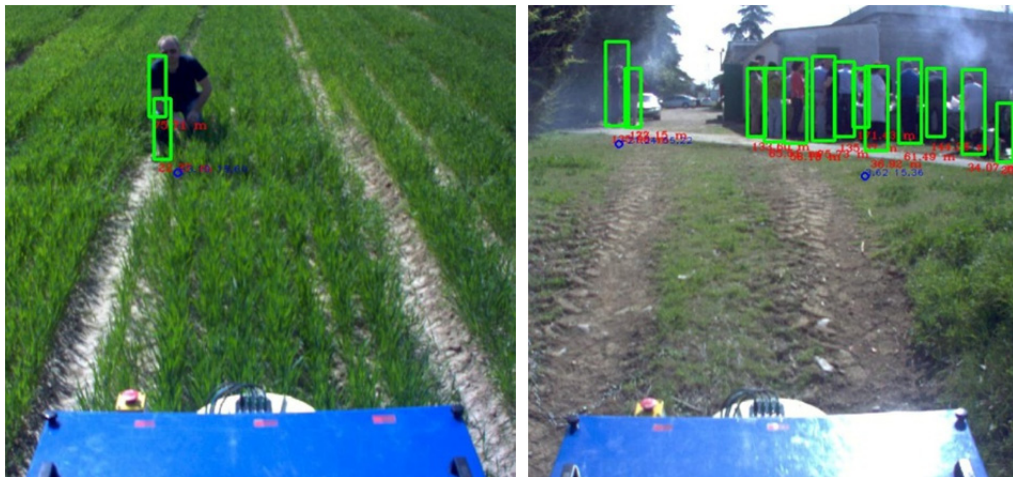


Figure 5.4. Obstacle detection with categorization



Fig. 5.5. Fuel cell system

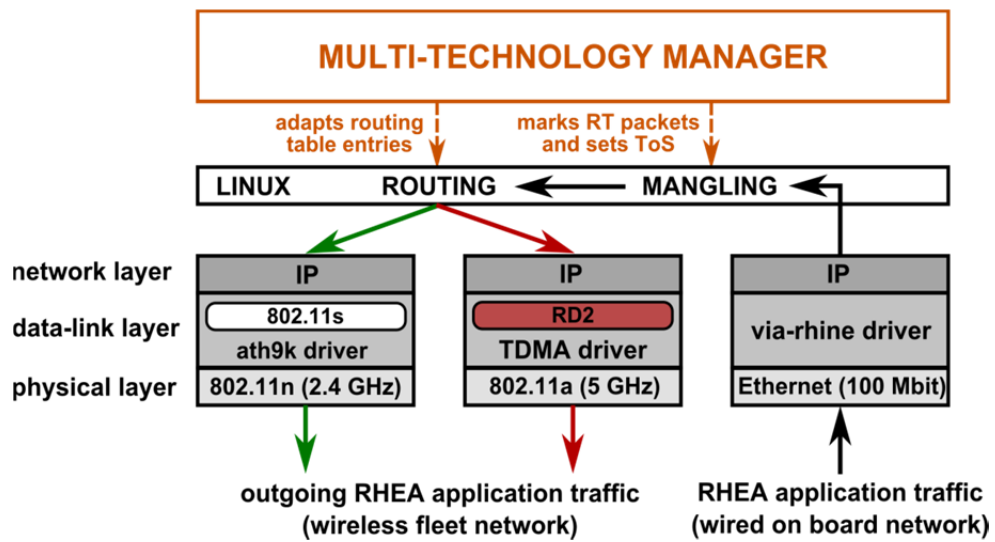


Fig. 6.1. A high-level overview of the communication system architecture

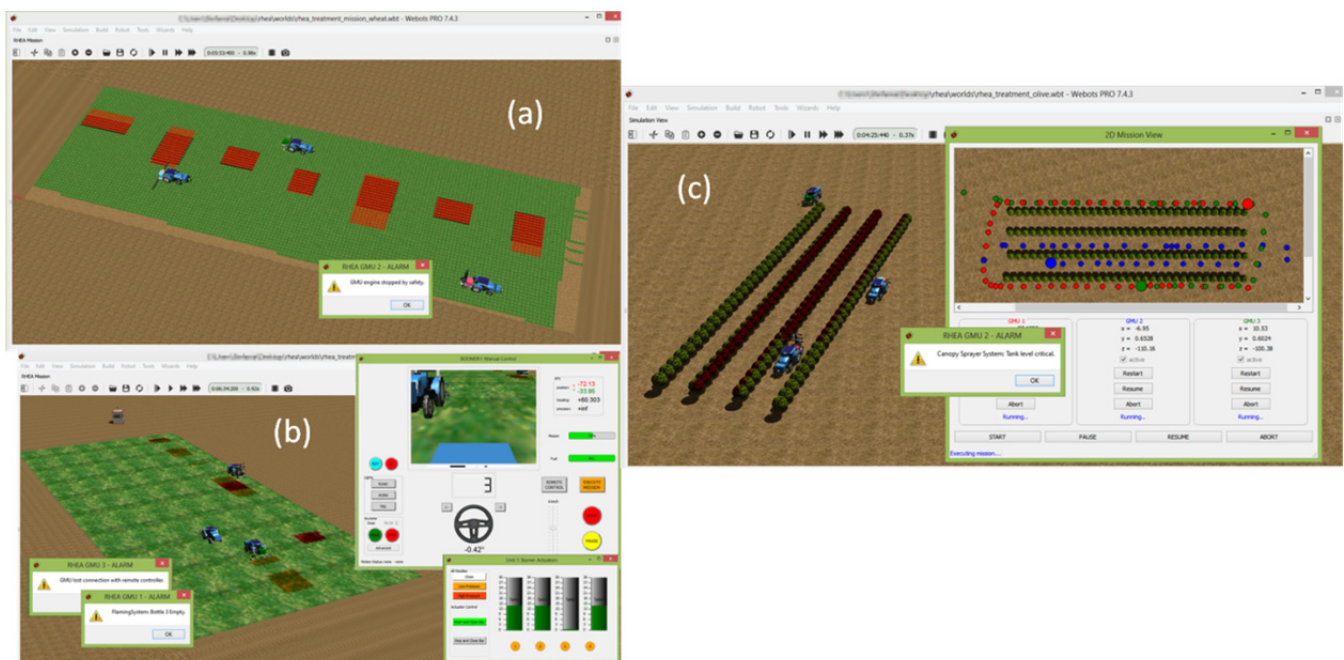


Fig. 7.1. Graphic User Interface illustrating different scenarios



Fig. 9.1. RHEA booths at (a) Agritechnica and (b) FIMA

The RHEA consortium

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(*) **RI:** Research Institution; **SME:** Small and medium enterprises; **UNI:** University; **IND:** Large industry

List of acronyms

MM	Mission Manager	
	MP	<i>Mission Planer</i>
	MS	<i>Mission supervisor</i>
HLDMS	High Level Decision Making System	
LLAS	Low Level Actuation System	
	GMUC	<i>Ground Mobile Unit Controller (Part of the LLAS)</i>
	AC	<i>Actuation Controller (Part of the LLAS)</i>
RODS	Row and Obstacle Detection System	
	RDM	<i>Row Detection Module (Part of the RODS)</i>
	ODM	<i>Obstacle Detection Module (Part of the RODS)</i>
WDS	Weed Detection System	
GPS	Global Positioning System	
DGPS	Differential Global Positioning System	
LS	Location System	
RSS	Remote Sensing System	
LGSS	Laser Ground Sensing System	
	LODM	<i>Laser Obstacle detection Module (Part of the LGSS)</i>
	LCSM	<i>Laser Crop Status Module (Part of the LGSS)</i>
GMU	Ground Mobile Unit	
AMU	Aerial Mobile Unit	
AUHLIC	Aerial Unit High Level Controller	
AUGCS	Aerial Unit Ground Control System	
UPD	User Portable Device	
GUI	Graphic User Interface	