STAMINA - Image-based navigation

Autonomous driving without GPS!

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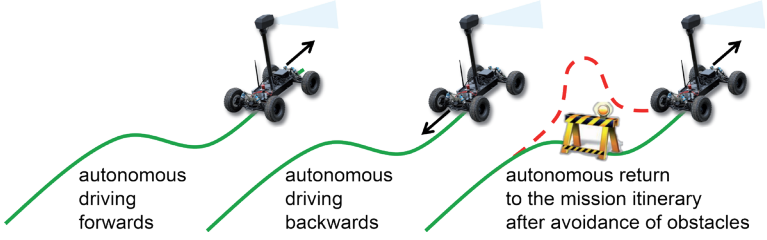
Goals/challenges of the project

- Development of an innovative technology that enables autonomous driving based on a computer vision navigation-module making no use of satellite positioning (GNSS).
- Autonomous driving without drift and with very high accuracy, suitable for operations in unstructured environments (e.g. foreign operations).
- Definition of an itinerary to be followed by a simple image sequence.

Innovation/major advantages

- Real-time recording of a new itinerary during an unique passage on the route to follow. This itinerary can then be immediately used for navigation without post-processing.
- Reduction of the image information of an itinerary to a minimalist set of metadata compatible with wireless communications between vehicles
- Possibility to restore the positioning capability even in case of GNSS disruptions (NavWare).



Military or civilian application of the project

- **MULE function** (Multifunction Utility/Logistics and Equipment) of tactical multipurpose Unmanned Ground Vehicle (UGV)
- **Road Clearance System (RCS)** through autonomous driving of the front detection-vehicle
- **Autonomous driving convoys** (including synchronized braking and fast reverse gear)
- **Patrol UGV**: surveillance of forward operating bases (FOB), sensitive areas and borders

AGENCE INNOVATION DÉFENSE

MINISTÈRE DES ARMÉES
Liberté Égalité Fraternité

Bundesministerium der Verteidigung

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