VEHICLE AUTOMATION FACTORS GROUP CHAIRMAN'S FACTUAL REPORT

ATTACHMENT 3:

The Shuttle Operating Booklet

Las Vegas, NV

HWY18FH001

(6 pages)

26 mai 2017

[NAME OF THE CLIENT]

OPERATOR TRAINING BOOKLET

nauya®
WE DRIVE YOUR FUTURE

2. NAVYA ARMA

2.1. NAVYA ARMA, THE FIRST AUTONOMOUS PRODUCTION VEHICLE

NAVYA ARMA is a driverless, safe, reliable and comfortable public transport vehicle that can carry up to 15 people. It has been designed to satisfy the specific needs of a driverless vehicle whilst optimising on navigation and safety functions. Its efficient guidance systems combine many different types of technology including Lidars, stereo vision, and odometry.

The NAVYA ARMA is 100% electric and operates with rechargeable batteries either by induction or directly with a plug. The vehicle is equipped with the latest generation in sensors to enable it to find its way around and navigate effectively. Thanks to this technology, the NAVYA ARMA is able to position itself within a few centimetres from the desired target and to identify all types of obstacle on the road (fixed such as posts or mobile such as pedestrians) or signage in both daylight and at night time.

The designers behind the NAVYA ARMA have also concentrated their efforts on the comfort of its passengers to include a closed cab and comfortable seats to protect against climatic conditions such as rain, cold and heat (AC, heater) and also against the general movement when driving. Automatic doors linked to voice information messages and information videos mean that passengers can get on and off safely. Optimum passenger capacity is 15. Whilst the NAVYA ARMA remains loyal to the tradition of public transport, its means of interacting with the public show how innovative it is.

2.2. VEHICLE'S SENSORS AND INTELLIGENCE

The technical design of the NAVYA ARMA is based on three interlocking pillars: the perception, which is understanding the environment in which the shuttle is located, the ability to detect obstacles and anticipate movements. The decision, which calculates and determines his itinerary and trajectory. And navigation, which enforces the best computer decisions on the vehicle.

2.3. OPERATING CONDITIONS

The shuttle ARMA can operate in main metrological situations. However, under extreme conditions (snow-storm, heavy rain, hail, heavy wind, impassable roadway, etc.) the traffic of the shuttle can be slowed or stop by the supervision center or the site manager to avoid any risk of incident.

In that sense, if a danger (accident, rock, ice on the roadway, etc.) occurs on the path, the site manager could decide to take action directly alongside the supervision center to proceed an emergency stop.

The operating range of the shuttles widen between -10°C to +40°C.

3. ROLE AND RESPONSABILITES

Every person operating the shuttle must have a valid driving license and must have been previously trained by NAVYA.

While on duty, the operator is responsible for:

- The reception of the passengers
- Checking the proper functioning of the vehicle
- Reporting any error to the supervision center
- The security of passengers inside the vehicle and pedestrians outside
- Every material damages and injuries caused by the misuse of the vehicle
- Driving in manual mode

In manual mode, the operator is considered to be the driver of the vehicle.

The operator is responsible for the driving and every material damages and injuries caused by the misuse of the vehicle. The operator must have the physical and mental capacities required to drive a motorized-vehicle.

For safety reasons, the manual driving must be done from the passengers' compartment.

The operator is responsible for the safety and the reception of the passengers. The operator also has a role of representation, not only from his company's brand image, but also from NAVYA's brand image. In that sense, the operator must have a polite and adapted attitude towards passengers.

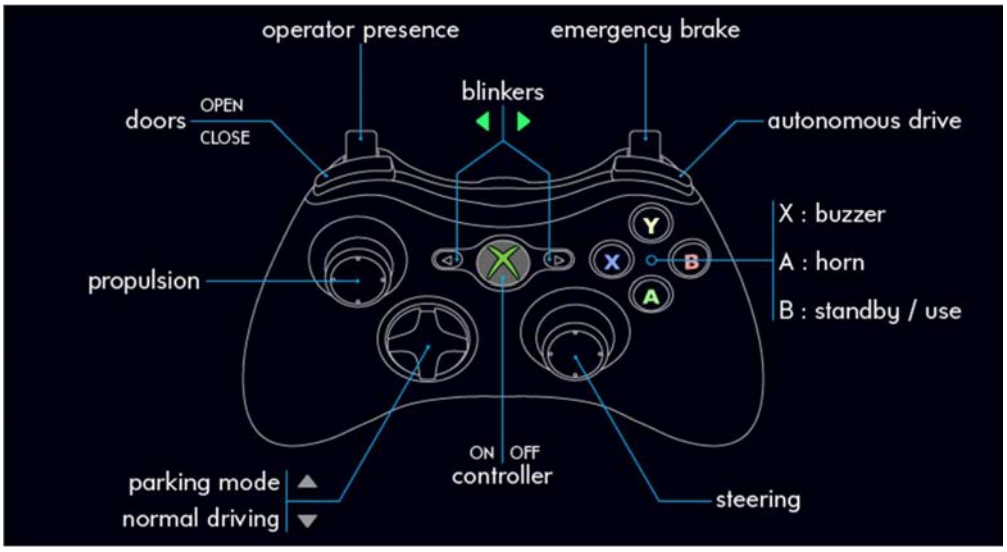
1.2.1-Status bar

On the left of this bar, several icons will be displayed depending on the state of the vehicle:

- The state of the GNSS
- The state of the connection to the SFTP server
- The state of the application's connection to the vehicle's internal servers
- Alerts relating to the black box

The battery level is displayed on the right.

1.2.2-Introduction to the controls



This is a complete list of the features of the controller for manual driving.

1.2.3-Disc status

1.3-CONTROLLER INSTRUCTIONS

MANUAL MODE CONTROL

Automatic / Manual : Automatic mode is active by default. Switching to manual mode by pressing (6). Return to automatic by pressing (6) and (10).

Standby / Active : Press the control (B) to switch between the Active mode and the Standby mode and vice versa. Standby mode disables propulsion.

Driving / Maneuver : Press the down arrow (2) to activate the maneuver mode. Three speeds are available in maneuver mode: 0.1, 0.3 and 0.5 [m / s]
Up arrow (2) to return to driving mode.

Deadman : To be able to operate the shuttle, the control (6) must be constantly depressed. Release the control (6) causes emergency braking.

Emergency braking : To release the emergency brake, release the control (6) or press the control (9).

Acceleration: Propulsion joystick (3).

Max acceleration

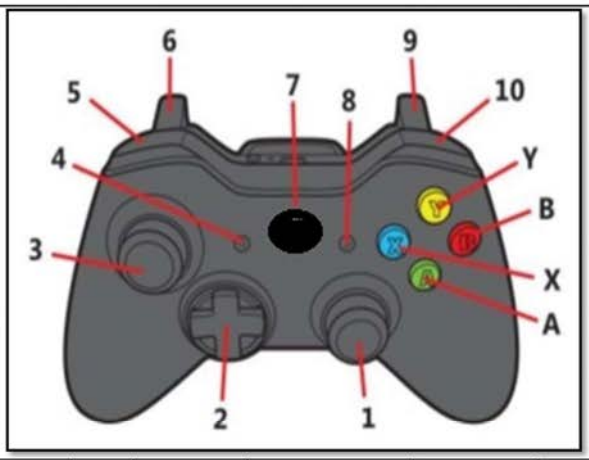
Progressive acceleration

Constant speed

Progressive braking

Max braking

Joystick released: soft brake



Direction : To steer the vehicle, gradually orient the steering joystick (1) to the left (or right) to turn left (or right) in the forward direction.

1	2	3	4	5	6	7	8	9	10	Y	B	X	A
Direction	Maneuver/Driving	Propulsion	Left turn signal	Doors	Deadman	On/Off Remote Control	Right turn signal	Emergency brake	Automatic	Ø	Stand by	Buzzer	Horn

WARNING

Only persons authorized by NAVYA are allowed to operate the shuttle

In case of problem, please use the safety procedures and contact NAVYA's supervision center : **+33 6 98 74 32 49**