

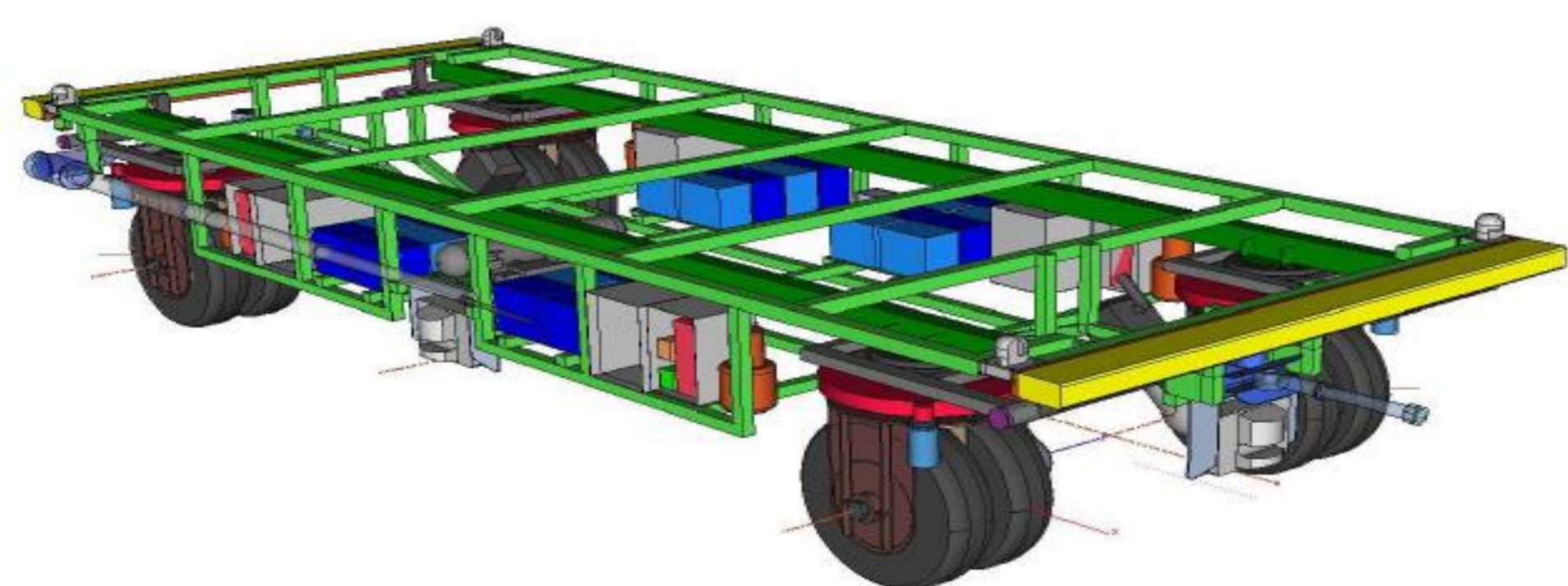
# Operating Mode Management of an Intelligent Autonomous Vehicle

## Objective

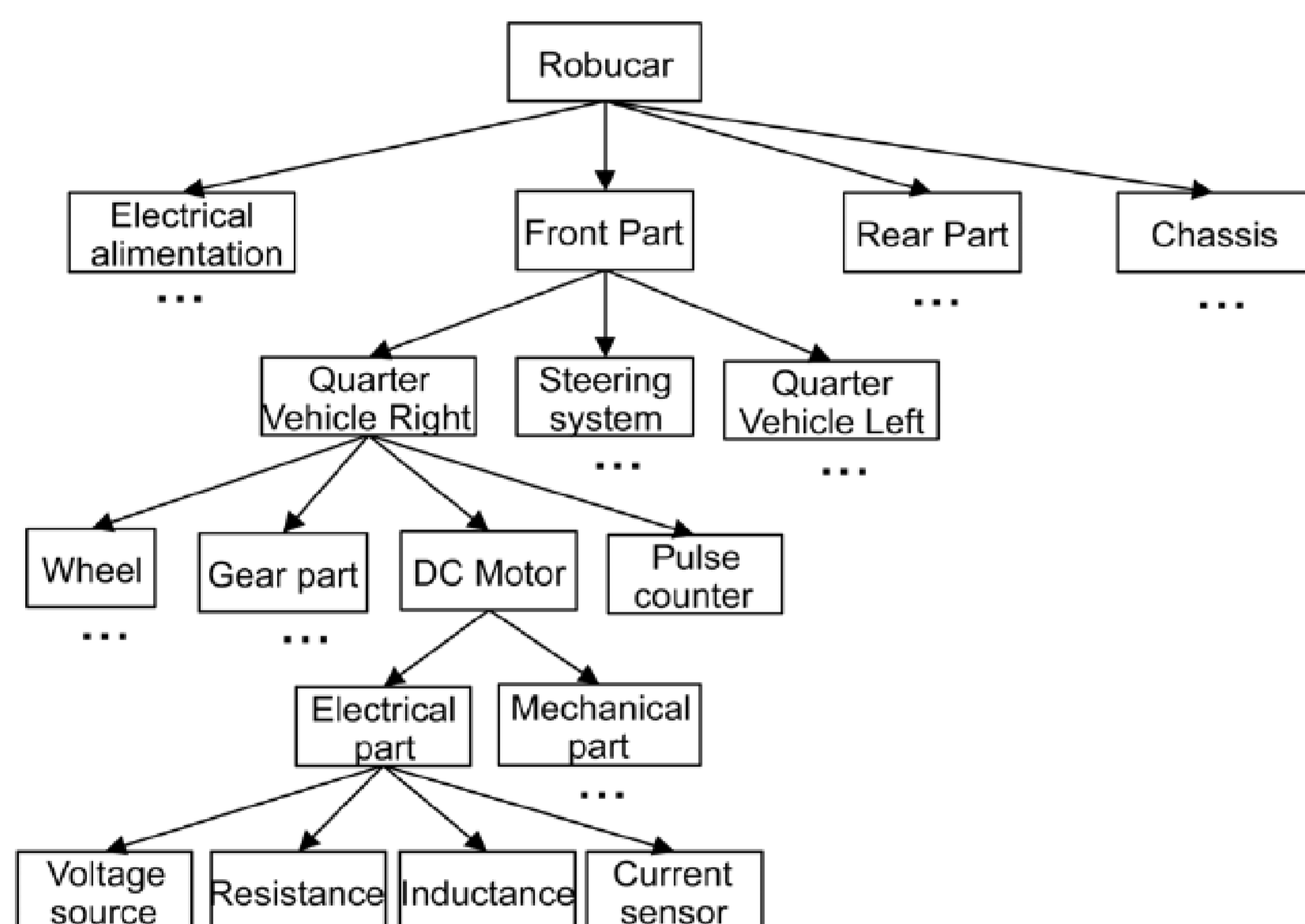
Design and develop a supervision system managing the operating modes of an Intelligent Autonomous Vehicle (IAV).  
The adequate operating mode is determined in real time according to the missions to achieve (users objectives) and the availability of the hardware resources (faulty or non faulty).

## A multimodel approach

### 1. Hardware description

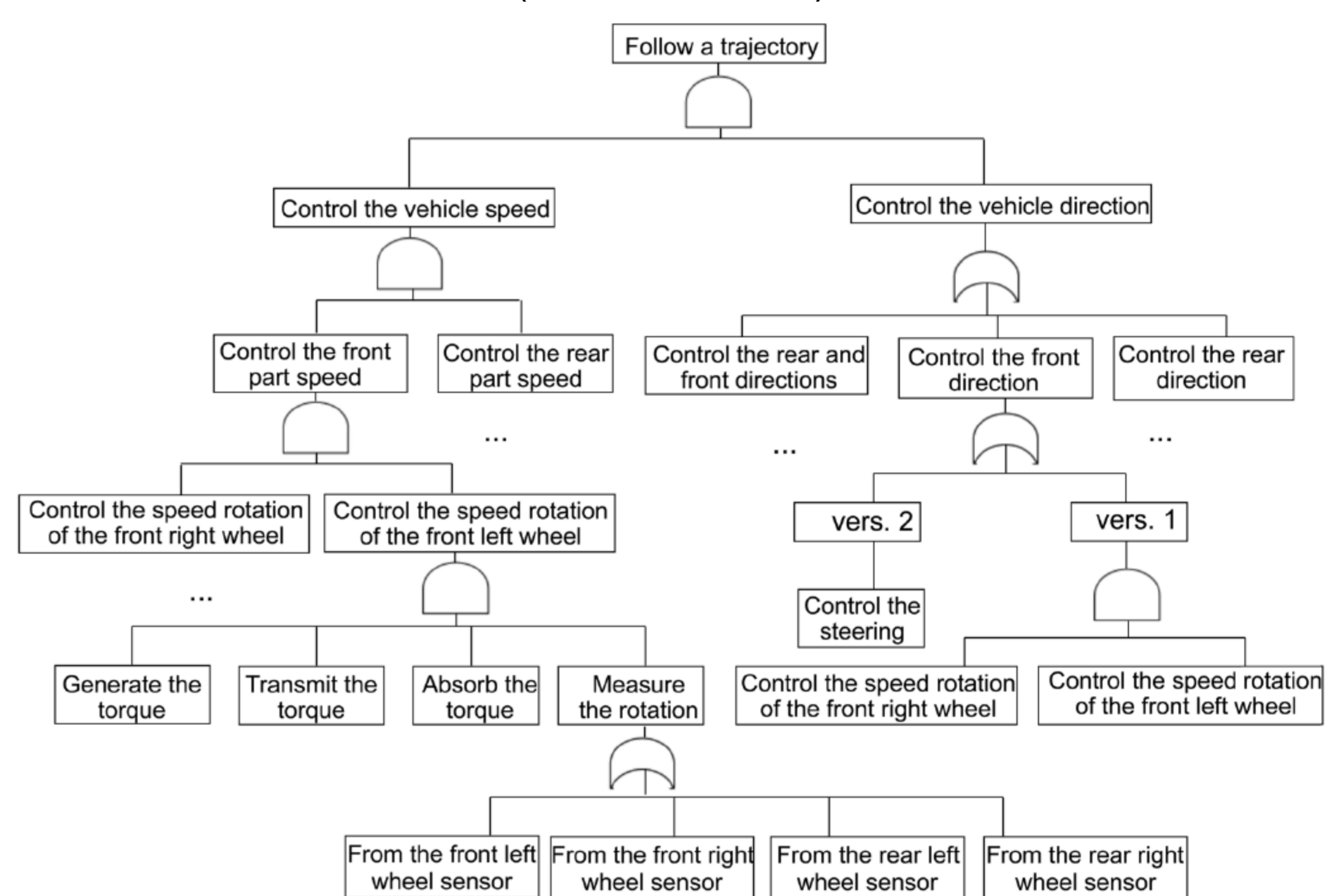


The IAV is a set of hardware components.

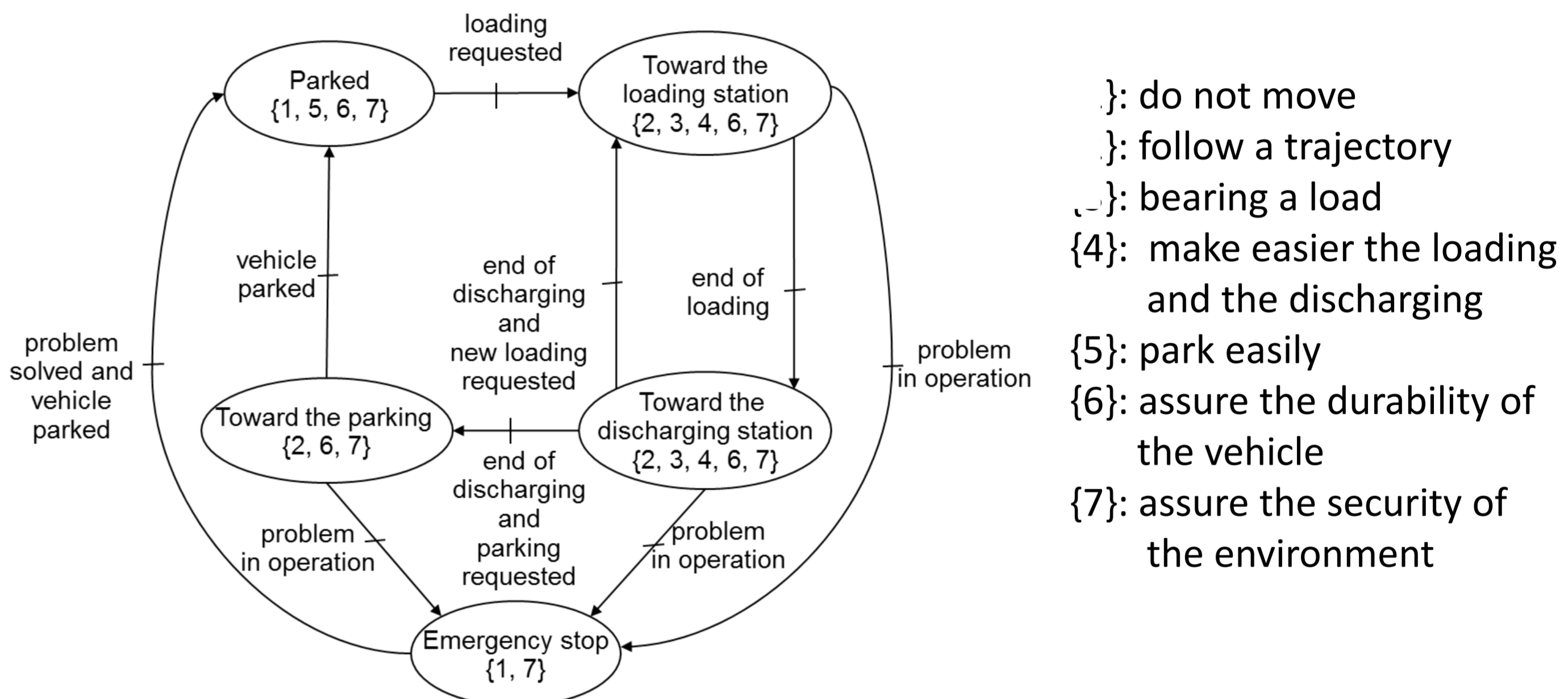


### 2. Functional description

Hardware components provide services to users. Services are associated to realise the IAV missions. The realisation of a mission can be represented by an AND/OR tree. AND nodes express that services of lower levels are required to realise a service version. OR nodes express that several versions exist to realise the service (fault tolerance).

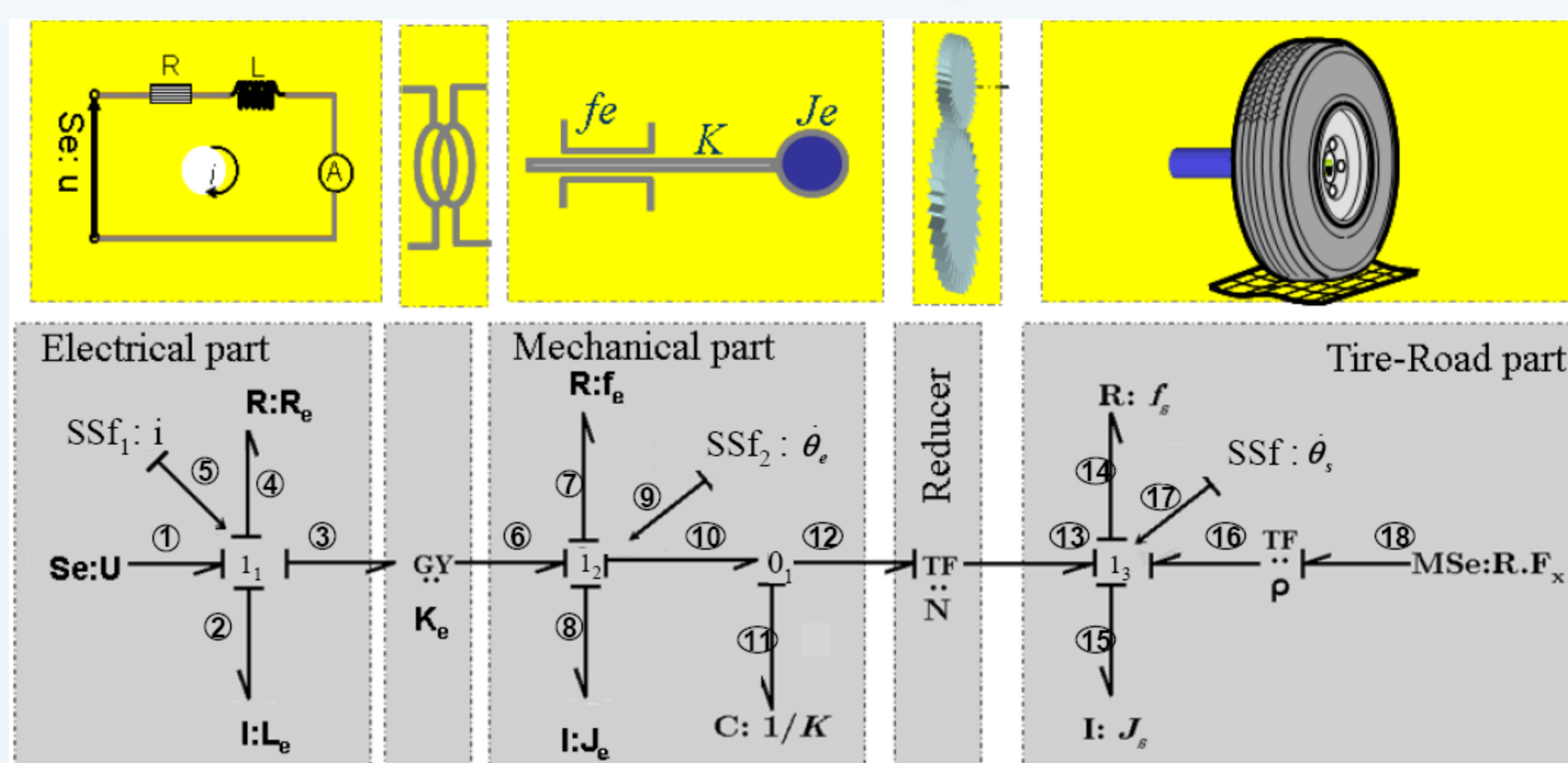


Missions are organized into coherent operating modes.



### 3. Behavioural description

The service availability and the conditions to switch from one mode to another are analysed by fault detection and isolation algorithms generated on the basis of the structural and causal properties of the bond graph tool.



## Results

