

Exercise on Requirements Engineering

Check S.M.A.R.T. criteria

Requirement ID	Requirement	S.	M.	A.	R.	T.	Commentary & Correction
REQ_1005	The scooter should be able to transport people.						
REQ_1006	While using the scooter, technical data such as range etc. must be available for the customer.						
REQ_1007	The scooter must have built-in anti-theft mechanisms so that it automatically detects the theft and drives away from the thief.						
REQ_1008	The scooter should last a very long time before essential parts need to be replaced.						

Case Study

Setting the Stage

- There has been a dynamic increase in smart mobility alternatives for the past 10 years in European and Asian regions.
- Increasing ecological awareness and media coverage of traffic congestion and noise pollution motivate professionals and commuters to find alternative transportation options.
- Furthermore, growing interest in eco-friendly and alternative energies is reported.
- An increasing number of extreme weather conditions yield market opportunities to offer exchangeable tires for dry and wet roads and surfaces.
- Increasing interest in private travel and occupational mobility brings up the need for e-scooters that are transportable.
- Smart APP connectivity is regarded as a lasting trend with high success potential.

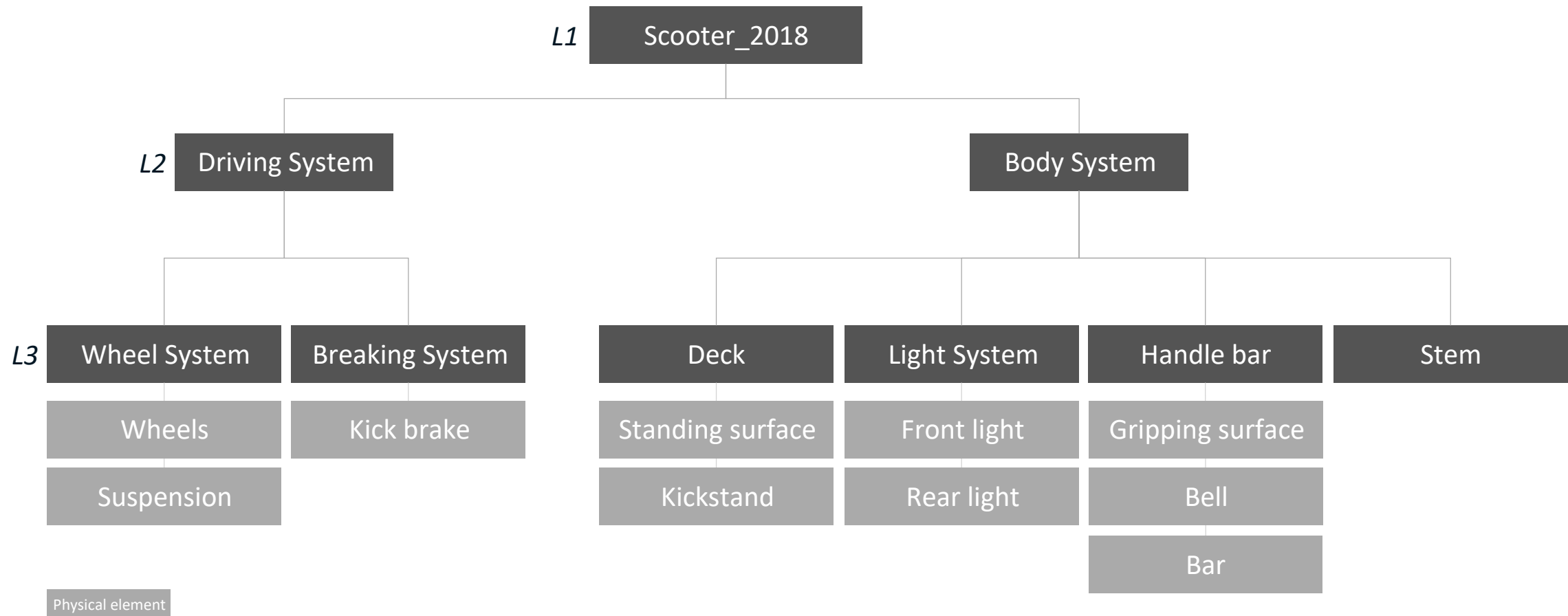


This is a detailed exploded view diagram of a motor scooter, showing the main frame and various components that attach to it. The parts are labeled in Italian. Key components include:

- Handlebars and Controls:** MANIGLIA (Handlebar), MANIGLIA SINISTRA (Left Handlebar), MANIGLIA DESTRA (Right Handlebar), MANIGLIA SINISTRA (Left Handlebar), MANIGLIA DESTRA (Right Handlebar), MANIGLIA SINISTRA (Left Handlebar), MANIGLIA DESTRA (Right Handlebar).
- Wheels and Tires:** RUOTA ANTERIORE (Front Wheel), RUOTA POSTERIORE (Rear Wheel), RUOTA ANTERIORE (Front Wheel), RUOTA POSTERIORE (Rear Wheel), RUOTA ANTERIORE (Front Wheel), RUOTA POSTERIORE (Rear Wheel).
- Engine and Drivetrain:** MOTORE (Engine), MOTORE (Engine), MOTORE (Engine), MOTORE (Engine), MOTORE (Engine), MOTORE (Engine).
- Frame and Chassis:** CARCASSA (Frame), CARCASSA (Frame), CARCASSA (Frame), CARCASSA (Frame), CARCASSA (Frame), CARCASSA (Frame).
- Other Components:** MANIGLIA (Handlebar), MANIGLIA SINISTRA (Left Handlebar), MANIGLIA DESTRA (Right Handlebar), MANIGLIA SINISTRA (Left Handlebar), MANIGLIA DESTRA (Right Handlebar), MANIGLIA SINISTRA (Left Handlebar), MANIGLIA DESTRA (Right Handlebar).

Case Study

Product Breakdown Structure (PBS) "Scooter_2018"



Case Study

Requirements Verification Traceability Matrix (RVTM)

Req. ID	Requirement Description	Verification Method	Acceptance Criteria	Test Case ID
REQ_1001	While using the e-scooter, technical data for range shall be available for the customer by a mobile app.	<i>Test</i>	<i>Technical data for range is shown in the mobile app.</i>	TC_001
REQ_1002	The e-scooter should weight 19,5 kg to ensure easy portability.	<i>Analysis, Inspection</i>	<i>Simulation shows a first weight indication of 19,5 kg. Weight of the e-scooter after final assembly is 19,5 kg.</i>	TC_002
REQ_1003	Under normal conditions, the e-scooter should be charged in 2 hours.			TC_003
REQ_1004	At the time of the purchase while driving fullspeed the noice level of the e-scooter shall be less than 40 db.			TC_004
REQ_1005	The e-scooter should be able to transport men and women from 14-60 years.			TC_005
REQ_1007	The e-scooter must have built-in anti-theft mechanisms in the form of a GPS tracker that transmits its location every second.			
REQ_1008	In normal use, the e-scooter should travel 10,000 km before major parts need to be replaced.			

Verification Method: Analysis, Inspection, Test