Safety features:

Solution 1 Anti-lock braking system (ABS)

As the name implies, the ABS prevents or reduces the vehicle

Skidding when the car brakes suddenly. The ABS is mainly composed of three components, namely the speed sensor in each wheel, a valve of the hydraulic steering system that leads to each brake pump to return the pressure of the hydraulic brake controlled by a computer, and also a control module. The advantage of this type is that adapting will be easier with brake by wire electric interfaces.

Solution 2 Electronic Stability Control (ESC)

The ESC is a feature that maintains the vehicle to be stable in preventing accidents. The sensors on the wheels can detect slippage and braking. In case something strange is detected by the sensor, the ESC system will instantly re-adjust by applying braking forces to the appropriate wheels . In addition to increasing the stability of the car, the ESC presents other benefits: reducing collision speed and improving vehicle roll stability.

Both barking systems have the same goal: ensure you maintain complete control of the vehicle in critical situations. However, while ABS is used to regulate braking and is focused on stopping the car, the ESC is much more effective in maintaining roll stability when the car is turning especially when the roads are not optimal .

In our vehicle we chose as a safety feature the Intelligent braking system IBS that combined the functions ABS and ESC .

IBS parts :

Speed sensors,

Pneumatic Cylinder,

Relay with Driver circuit,

Solenoid valve

control unit.

The speed sensor will be fixed on the wheel to find out the speed of the car. The controller continuously counts the speed of the car and compares it with the fixed limit of speed, in case the speed exceeds the limit the controller energies brake through a relay which is connected to a pneumatic cylinder. The pneumatic is given to tyre to apply brake every time the relay switches on.