

Driving innovation - First car to be driven by AI-powered smartphone

'RoadReader' – a project designed to push the boundaries of Huawei's object recognition technology, putting the learning capabilities, speed and power of its AI-powered devices to the test by piloting a driverless car.

How it works: Step by step

1. Scanning

Camera scans road ahead and streams its image data wirelessly using a Teradek Bolt 3000



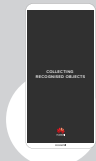
2. Detection

Camera detects object and passes this data into an HDMI converter, then turns this data into a UVC protocol which is directly read by the Mate 10 Pro, through its USB-C



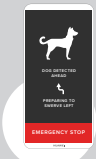
3. Object Recognition

Data is sent to AI chip which identifies object. The Mate 10 Pro's NPU (Neural Processing Unit) uses a complex object-recognition algorithm (Tensor Flow), the NPU interprets the image data and matches the object from its model library of 1000s of images



4. Selecting Avoidance Manoeuvre

The Mate 10 Pro then initiates the appropriate avoidance manoeuvre for the car to make



5. Smart Manoeuvring

The Mate 10 Pro sends the car's robotic system a series of commands (reduce throttle, apply the brakes, turn the steering wheel etc...). The commands are sent from the phone via WiFi using UDP (User Datagram Protocol)



What makes this unique?



Object recognition:

Huawei developed the Mate 10 Pro's built-in object recognition mode, teaching the device to distinguish between specific objects and implement different avoidance manoeuvres.



Processing power:

The Kirin 970 chip has a NPU (Neural Processing Unit) which acts like its brain, giving the car the unique ability to understand and learn about objects and hazards on the road and decide on and carry out the appropriate manoeuvre.



Intelligent learning:

If the obstacle matched one of the 1000 entries in the current object recognition 'model' the phone uses, then the Mate 10 would "know" what the object was. If the object isn't currently listed, then the phone has the ability to be trained how to identify it via deep machine learning.