Liza: the driving assistant

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Background:
Having smart devices made life so easy.
Imagine you have a smart car that really care about your safety and also fun to ride.
Here we are proposing a software that can transfer a regular car into a smart one with an ease of implementation.

Main modules:
1. lips-reading commands
2. Facial driving
3. Gaze tracking
4. Emotion detection and classification
5. Abnormal action detection

Scenario:
-Driver enters his/her car, start the engine with the lips command
-If the car detected that the driver is distracted and not focusing on the road by the gaze tracking, it will notify him/her two times then it would enable the autopilot automatically if it's available or just stops the car.
-Driver can switch between manual driving, facial driving and autopilot modes by the lips command
   - note: autopilot is not a part of this software.
-Facial driving is the way in which you can drive the car by the movement of the head which is an easy way of driving, it can help people with special needs to drive easily
-By detecting driver's emotions car can make some decisions:
- if the driver is in a bad mode, then his/her decision will not be accurate 100%, then car can switch to autopilot automatically if it's available
-if the car detected any abnormal action, it would record what is happening inside the car for later revision

Parts and Roles:
1. Back-end: python scripts   → Nour
2. fFont-end: andriod application   → Nasr
3. Server: connection between front-end and back-end   → Nasr

References:

1. LIPNET: END-TO-END SENTENCE-LEVEL LIPREADING
    Yannis M. Assael1,† , Brendan Shillingford1, UK 1 Google DeepMind, London

2. Image based Eye Gaze Tracking and its Applications
    Anjith George *2019*

3. Emotion Recognition from Facial Expression using Deep Learning
    Nithya Roopa. S