ADVANCED TECHNOLOGY--WORKING THEORY

LS801 adopted the most advanced non-contact infrared camera to capture human eyelid and retina status,( in general, before entering drowsy driving status, human retina was less and less sensitive to the light outside), analyzes the driver’s fatigue status according to PERCLOS method, and give out voice alarm before the driver falling asleep. LS801 can also detect the driver’s distraction and give out voice reminders to prevent accidents, such as talking with back passengers, adjusting audio, or operating navigator, pick up thing from the ground and so on.

FATIGUE DRIVING HAZARDS

Driver fatigue is one of the most fatal traffic safety hazards. Every year about 25% (2,000,000 cases) of accidents were caused by driver fatigue, 190,000 people were injured or killed in those cases. 50% driver commit that he have fatigue driving experience several times in the past 1 year, it’s necessary to have a device to remind them.
**WORKING PROGRESS**

- The LS801 will recognize your face in 10 seconds after powered on(some drivers with glasses or special face, such as scared, wrinkled, will need a little longer), and then find your eyes, locate your retina, if failed to have your retina located in 2 seconds(according to the sensitivity you set), the system will be triggered.

- However, the LS801 is very smart, if you close your eyes in purpose, but in the past several seconds, your body have big movement, or speaking, or no fatigue status at all, or driving slowly, the system will give out alarms after 4-7 seconds. If you are driving on the highway, no movement, no speaking, eyelid is lower and lower, or even looking ahead but absentely(pupil will turn dark under trance status), the device will give out alarm in 2 seconds.

- Under normal driving status, after 1 alarm, the other need to wait at least 10 seconds to be triggered again.

**SENSITIVITY SETTING**

4 kind of sensitivities enhance the alarm’s accuracy and reduce wrong noisy.

A. 1,2 both off, testing level, very high sensitivity.
B. 1 on, 2 off, high level, high sensitivity, have a little bit more interval for looking around.
C. 1 off, 2 on, middle level, tend to real sleeping alarm, more interval for looking around.
D. 1,2 both on, low level, only alarm for real sleeping and trance.

All of the 4 level’s fastest alarming time for real sleeping and trance is 2 seconds, the difference is reaction time on looking around and eye closing in sober status.

---

**VOLUME SETTING**

LS801 will give our voice “please drive carefully”, “please pay attention to the road” to remind the driver first, if the retina still not be detected, a sharp siren will be given out, there are 4 level of siren volume for different type of vehicle:

- **A.** 3,4 both off, 1st level, loudest sound for truck.
- **B.** 3 on, 4 off, 2nd level, for bus and car.
- **C.** 3 off, 4 on, 3rd level, for car.
- **D.** 3,4 both on, 4th level, no siren sound, only the green light flashing.

Under all sensitivity and volume, the LS801 will output fatigue alarm signal to other devices, such as GPS tracking system.

---

**COMPONENTS**

The device was composed by main unit and cigarette plug, connected via USB cable, if your car have USB socket, you can connect to it directly.

1. green light, (indicate the eye open or close)
2. infrared light, (can see red light in the night)
3. lens
4. shell
5. siren
6. 360°turning ball
7. pedestal
8. cigarette plug
9. Magnet
10. Power socket
11. Signal output socket
INSTALLATION

1. Stick the main unit in front of the driver with the twin adhesive, and connect power through cigarette socket or USB port.

2. Place The device can be installed as the picture showed, within 15° angle between lens and middle of 2 eyes when installed on the right, within 10° angle on the left, with 30° angle under when installed in front of the dashboard.

3. Distance Under normal status, the distance between the lens and face should be within 60-80cm, but if wearing glasses, small eyes, or under strong light, the distance should be about 60-70cm.

4. After the green light on, move your face Up and down about in a small distance, if the green light is still on, that means the installation is good, the system recognizes 30pcs of pictures per second, light twinkle is normal when the eyes are open.

CONNECT TO GPS&GPRS VEHICLE TRACKING SYSTEM

It can connect to the GPS&GPRS vehicle tracking system, when there is alarms, it’s signal output line will give out 3.3V high level to the GPS tracker input, then forward to the center, if your existing GPS tracker have input, it’s okay to connect directly. When the monitor center get the fatigue alarms, they can arrange the tired driver to rest, or change another one, thus to avoid many accidents.

PARAMETER

1. Car power can work in 8V to 36V wide voltage range, suitable for both 12V and 24V car battery, and a good peak voltage protection

2. Very lower power consumption, average current less than 100mA in 12V car, and 60mA in 24V car, similar with leakage from the battery, almost does not consume battery power.

199/85 M.4 Nakornin Rd., Nonthaburi, 11130 Thailand
T: +662 4324387  F: +662 4324661
Email: infogreennio@yahoo.com  info.neonine@yahoo.com
www.greennio.com

NEONINE INTERTRADE CO., LTD.
ATTENTION

- Non-authorized person, please do not open or repair the device.
- Please do not operate the system when driving to avoid dangerous.
- Please handle carefully, do not drop or impact with hard objectives.
- Do not use chemicals or cleaning agents to clean the machine, it will damage the machine surfaces or rust the paint.
- Keep it away from water or moist place, device will be rusted or shortcut in those area.
- Do not rip, bend or squeezed the wiring by heavy object, or it will be hot to fire.
- LS801 does not recognize a kind of group people who have only one eye, white eyebrows, or rough scars or wrinkles around eyebrows.

EXTRA ATTENTION

- If the car was parked for a long time under the sun in the summer, the temperature will be very high inside the car, the device will enter sleeping mode to avoid high temperature damage, and never work until the temperature drops down. If you have installed it on the dash board, we suggest driver to turn the air condition mode to Defrosting, then the system will start working more quickly.
- Also, if the temperature less than 108, the device can’t start, need to wait the warm up.
- Leisure Auto Security Equipment Co., Ltd special legal statement: Driver fatigue alarm system is only a warning product, and dose not absolutely guarantee for your driving safety. Please be advised that LS801 is not responsible for any driving accident.

FAQ

1. Is the infrared light harmful to my eyes and body? No at all, the average light outlet power is less than 0.2W, and it is died down when spreading in a 30° angle and meter distance, less than 1/10 of indoor nature light, just because the infrared light can’t been seen when mixed with other lights, you don’t aware the existing.

2. I’m worry about too much noisy alarms.
   Don’t worry, the device have 4 level sensitivities, the lowest level mainly alarm for the real sleeping, looking around need 5-7 seconds to trigger the alarm, nobody will do it so long when driving on the highway.

3. If I must drive under fatigue status, is this unit useful?
   Yes, some trunk drivers always drive under fatigue status, some people used to doze when driving in on the highway, or if you have sleepless night, but must drive today. LS801 main target is not to detect the fatigue driving, but the instant dozing off, giving out alarms in that instant to wake you up.

4. Is it difficult to install?
   No, it’s very easy, just stick the main unit in front of the driver, and connect power from cigarette socket, no need any engineer or garage!

5. Will is influential my sight?
   No, it’s much smaller than a GPS navigator, and no need you to stare at it, just leave it alone after you have adjusted the angle toward your eyes.

6. What’s your advantage comparing to the other driver fatigue alarm system?
   There are 3 kinds of fatigue alarm system on the market:
   Nap zipper, it judges the fatigue status only from the driver’s nod, but some people don’t nod at all when sleeping, and some people used to nod when taking or singing, the accuracy is very low.
   Lane Departure Warning system, this system have restrict, if there is no line on the road, it’s no use at all. As we know, there is too much road without any line, or only 1 line in the middle, or the line is broken, all of those will influence the accuracy.
   Collision Prevention, this kind of products always use image, millimeter waves or laser light to calculate distance between your car and front/back car, but image will be influence by light and raining weather, millimeter is too expensive and huge size, laser light will kill 10,000 pieces of your retina cells if scan 30 times/second.
   And all of those products are detecting the behavior of fatigue, but some of drivers will keep driving in straight line and same speed after dozed off 10-20 seconds. It’s very dangerous if there is any overtake, obstacles or passengers. Our product LS801, waking up the driver in the doze off instant, much more efficient than those products.

7. Why the device don’t alarm when I closed my eyes?
   It have 3 reasons:
   First, the device need to recognize the driver’s face in the first 10-20 seconds after powered on, it can’t be triggered in this period.
   Second, the device is smart, if you have big body movement, or speaking, or turned you head, it will recognize that you are in sober status and wouldn’t give our alarms until 5-7 seconds.
   Third, you are too near, far, low or high, means you are not in center of the camera’s shot area, please adjust your seat and the direction ball. On the other hand, if you have no movement, speaking, driving in high speak, and your eyelid is lower and lower, it will give out alarms in 2 seconds as long as your eye closed or pupil can’t be detected.

8. Why the device not as sensitive as the beginning?
   The lens is dirty, please use cotton bud to clear it, if necessary, use some alcohol.

9. It just don’t work at all, what’s the problem?
   The system require 12V power and instant electric current 400-500mA, please check your power supply, if the voltage is low, or electric current is not enough, the device may have green light on, but not alarm.