Version up for “ the New Normal With COVID-19 “

PUX Corporation releases image recognition software for driver monitoring which enhances the robustness against masked faces and starts licensing of FaceU for DMS Ver.2.8.2

Osaka, Japan - November 17, 2020 - PUX Corporation(Hidetaka Fukae, CEO) is proud to announce that PUX will start licensing of “ FaceU for DMS Ver.2.8.2 “ for Driver Monitoring System(DMS) for automotive device suppliers and automotive supplies vendors from 2020/Dec/1.

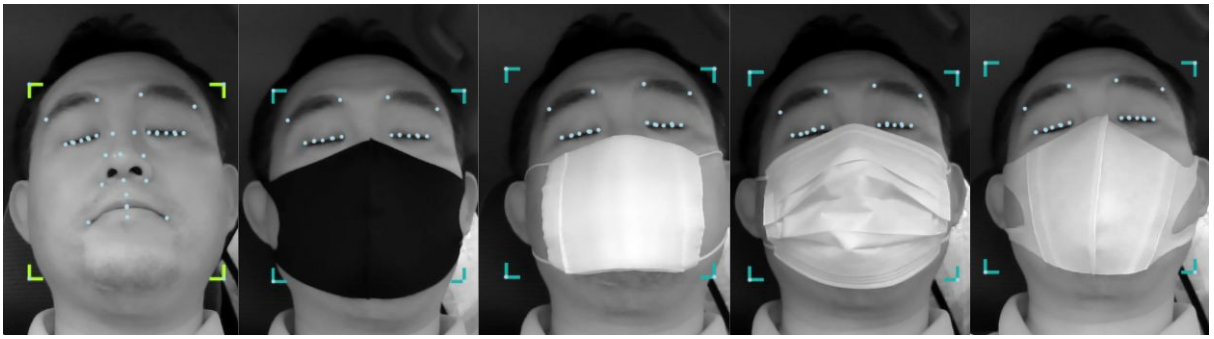
PUX has been developing the image recognition software for DMS since 2013.
FaceU for DMS has been applied for passenger cars of domestic/overseas mega automotive device suppliers and automotive supplies vendors since 2018.
The cumulative business track record is approximately 430K cars(4 car vendors / 9 vehicle types) as of 2020/Sep.

Driver monitoring functions, which detect the drivers’ statuses such as “ Looking aside “, “Distraction “, “ Drowsiness “ and “ Posture collapse “ and make a warning, are required to reduce car accidents.Furthermore, it is said that cars with DMS really become common according to the assessment programs such as Euro NCAP and the trend of autonomous driving.

However, under the recent circumstances in which wearing a mask is strongly recommended due to COVID-19, the following problems become apparent.

- The accuracy of face detection is affected by the variety of mask types.
- The masked faces impede Face identification/driver identification.

PUX develops FaceU for DMS Ver.2.8.2 which can realize face detection(Figure 1) and face identification/driver identification(Figure 2) even when the drivers are wearing a variety of masks to solve the problems above.



Without a mask “ 3D type “ (Black) “ 2D type “ (White) “ Pleated type “(White) “ 3D type “ (White)

Figure 1 : Examples of the recognition of masked faces

Figure 2 : Examples of face identification/driver identification of masked faces

Advantages of FaceU for DMS

1.Compactness and high performances

PUX realized both compactness and high performances by combining the conventional statistical analysis methods and newly developed deep learning rapid inference engine. Neither GPU, FPGA nor NPU is required.

PUX's engine can run and execute the real time processing on relatively inexpensive CPU (e.g. ARM Coretex-A7 1GHz x 1 core).

2.Wide-range-covered face detection

Covered-range : Yaw -> -90 ~ +90 degrees / Pitch -> -40 ~ +70 degrees (Figure 3)

The camera setting positions are flexible and various in-vehicle devices can be combined. (Figure 4)

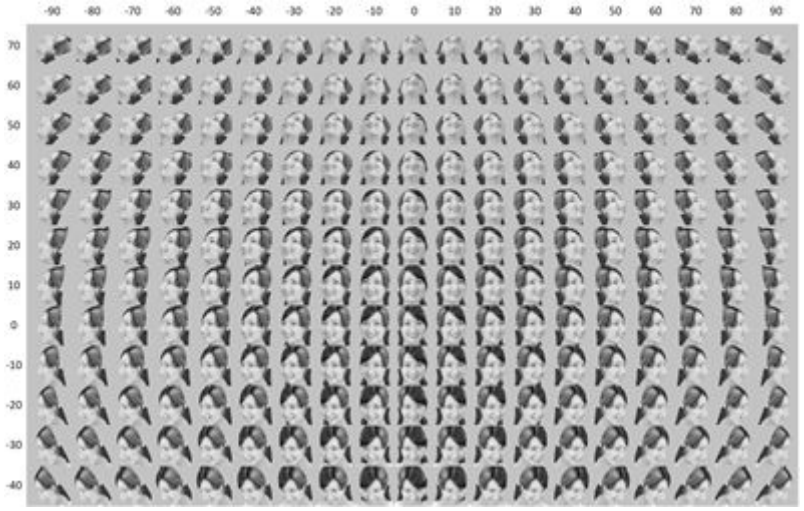


Figure 3 : The scope of face detection

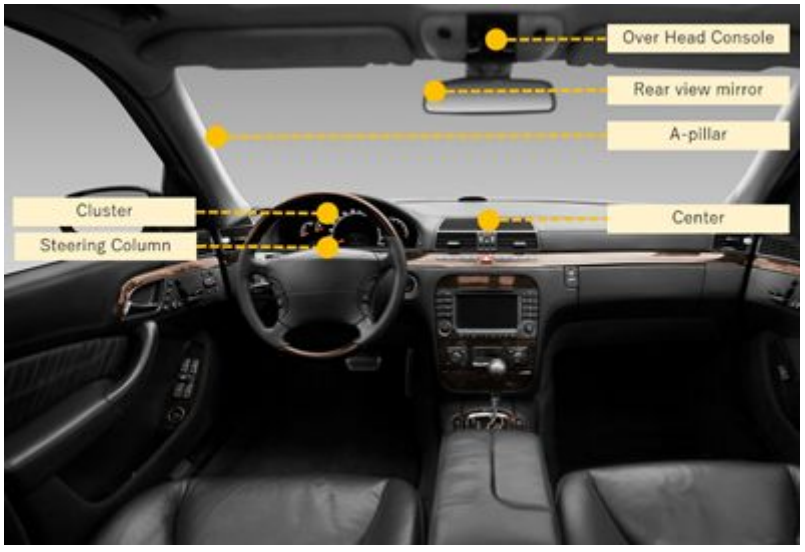
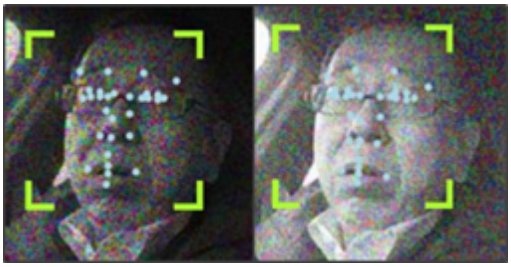


Figure 4 : Examples of the flexible setting positions of cameras

3.Strong robustness against poor image quality
PUX's engine can recognize low quality images in brightness, resolution / blur and noises with a high degree of accuracy. (Figure 5)

Brightness　　Low resolution / Blur



Noises

Figure 5 : Strong robustness against poor image quality

PUX Corporation
Established: April 2, 2012
Main shareholder: Panasonic Corporation, Nintendo Co., Ltd, Morpho, Inc.
Business: Planning design and development of computer software that utilizes information processing technology (image processing, network etc.) and related platforms

We, PUX contribute through developing software to make a society comfortable, by extracting information from images and videos which used to be merely visual before, analyzing them and visualizing the result together with the manufacturers and the application/service providers who utilize our human sensing technology.
Home Page URL : https://www.pux.co.jp/english-content/
DMS URL : https://www.pux-dms.com

Contacts URL
URL: https://www.pux.co.jp/english-content/contact/