HONDA

News Release

December 1, 2022

Honda Unveils Next-generation Technologies of Honda SENSING 360 and Honda SENSING Elite
– Honda pursues further advancement and popularization of its safety and driver-assistive technologies –

＜Honda unveils new technologies for its safety and driver-assistive systems＞

● **Honda SENSING 360**

As the next-generation technologies, new functions will be added to the current Honda SENSING 360 to further reduce driver burden by detecting abnormal conditions occurring to the driver and the vehicle's surroundings and reducing the risk of collisions. The new functions will be applied sequentially on a global basis starting in 2024.

● **Honda SENSING Elite**

As the next-generation technologies for Honda SENSING Elite, Honda has been developing new technologies to assist the driver in achieving a safe and seamless ride from home to their destination with complete peace of mind on any roads, now including non-expressways, utilizing recognition and understanding technologies achieved by the Honda's original AI (artificial intelligence) technologies. The new technologies will be applied sequentially on a global basis starting in the mid-2020s.

＜Honda's 2030 targets for the application of safety and driver-assistive systems＞

In order to reduce global traffic collision fatalities involving Honda motorcycles and automobiles by half by 2030, Honda has set the following targets:

- Strive to equip all of its new automobile models globally with Honda SENSING (including the 360 and Elite variations) with a motorcycle detection function by 2030.
- Strive to equip all new models in all major markets with Honda SENSING 360 by 2030.

TOKYO, Japan, December 1, 2022 – Honda Motor Co., Ltd. today unveiled the next-generation technologies of the Honda SENSING 360 omnidirectional safety and driver-assistive system, and Honda SENSING Elite, a flagship variation of Honda SENSING, respectively.

Based on the global safety slogan "Safety for Everyone," Honda is striving for a collision-free society for everyone sharing the road by pursuing the research and development of safety technologies from the perspective of both hardware and software. The Honda SENSING safety and driver-assistive system Honda currently applies to its mass-production models is installed to 99% of Honda's new automobile models sold in Japan and the U.S. and 86% globally. Cumulative sales of vehicles equipped with Honda SENSING now tops 14 million units[*1].

Honda has been continuously advancing Honda SENSING functions. In 2021, Honda launched Honda SENSING Elite with the Traffic Jam Pilot function, which qualifies for Level 3 automated driving technology. By leveraging know-how amassed through the research and development of Honda SENSING Elite technology, Honda developed the Honda SENSING 360 omnidirectional safety and driver-assistive system, which removes blind spots around the vehicle and contributes to collision avoidance and the reduction of driver burden. The application of Honda SENSING 360 will begin in 2022, starting from China.

Today, Honda unveiled the next-generation technologies of Honda SENSING 360, which will realize new functions to reduce driver burden by detecting abnormal conditions occurring to the driver and vehicle's surroundings to prevent collisions. These new functions will be added to the current Honda SENSING 360 and applied sequentially on a global basis starting in 2024.

As the next generation technologies of Honda SENSING Elite, Honda also announced newly developed functions based on the enhanced recognition and understanding technologies achieved by the utilization of Honda's original AI technologies. These new functions will assist the driver in achieving a safe and seamless ride from home to their destination with complete peace of mind on any roads, now including non-expressways.

As for future plans, Honda is striving to equip all of its new automobile models globally with Honda SENSING (including the 360 and Elite variations) with a motorcycle detection function by 2030. Moreover, Honda will strive to equip all new models in all major markets with Honda SENSING 360 by 2030, while also continuing to advance Honda SENSING functions. Through these initiatives, Honda is aiming to reduce global traffic collision fatalities involving Honda motorcycles and automobiles by half by 2030.

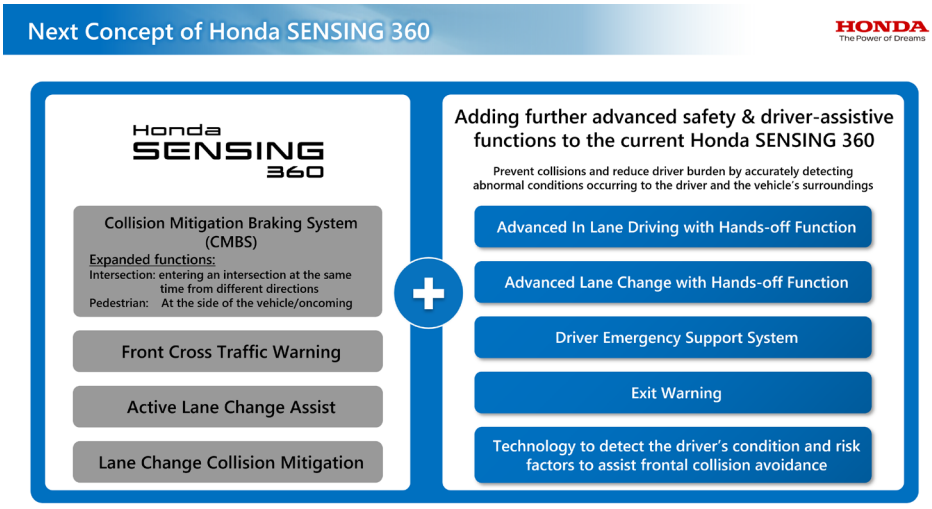
Honda is striving for zero traffic collision fatalities involving Honda motorcycles and automobiles globally by 2050. By leveraging strengths unique to a company that conducts both motorcycle and automobile business in the research and development of safety technologies, Honda will work sincerely toward the realization of a collision-free society for everyone sharing the road.

*1 Honda internal research as of September 2022.

＜The next-generation technologies of Honda SENSING 360＞

In addition to the current Honda SENSING 360 technologies that assist the driver to avoid collisions, Honda will add the following new technologies to further reduce driver burden by reducing the risk of collisions through accurate detection of abnormal conditions occurring to the driver and the vehicle's surroundings. By reducing health-related or human error-triggered collisions with these new technologies, Honda will strive to offer vehicles which encourage customers to want to go out more actively and go farther on their vehicles.

These new Honda SENSING 360 technologies will be added to the current Honda SENSING 360 sequentially in accordance with customer needs in each region.



■ Advanced In Lane Driving with Hands-off Function[*2]

The system reduces driver burden by operating the accelerator, brake pedal and steering wheel to assist the driver to maintain proper vehicle speed and stay in the lane even while the driver takes hands off the steering wheel. When there is no car in front of the vehicle, the system drives the vehicle along the middle of the lane while maintaining the pre-set vehicle speed. For turning, the system detects the curvature of the lane in advance and assists the driver in smooth cornering by reducing vehicle speed in accordance with the detected curvature. When there is a car in front, the system assists the driver to follow that vehicle while maintaining a proper following distance.

Advanced In Lane Driving with Hands-off Function

■ Advanced Lane Change with Hands-off Function[*2]

While driving using the Advance In Lane Driving with Hands-off Function, when the driver switches on the Advanced Lane Change with Hands-off Function, the system assesses the situation and assists the lane change and / or passing of the other vehicle under certain conditions. When the system detects a car in front being driven at low speed, the system notifies the driver and then assists in passing and returning to the original lane.

Advanced Lane Change with Hands-off Function*

■ Driver Emergency Support System

When the driver is unresponsive to the system's requests for a handover (the transfer of control back to the driver), the system assists deceleration and stopping of the vehicle within the same lane. To be more specific, in case the driver does not respond to the system's handover requests, the system escalates alarm sounds and urges the driver to respond. If the driver remains unresponsive, the system will assist deceleration and stopping of the vehicle while alerting other vehicles around using hazard lights and the horn in order to keep the driver, occupants and other road users away from the risk of a traffic collision.

Driver Emergency Support System

■ Exit Warning

While the vehicle is parked, when the system detects a vehicle approaching from the rear, the indicator on the front pillar or side mirror lights up to assist occupants to recognize an approaching vehicle. When the system detects the risk of a collision between the vehicle door being opened to get out of the car and other vehicles passing by, an indicator flashes and an audible alarm sounds to alert the occupants.

Exit Warning

■ **Technology to detect the driver's condition and risk factors to assist frontal collision avoidance**

1) Driver Attention Warning and Collision Warning

The system detects the driver's condition, and when there is a risk of a collision with a pedestrian, bicycle or vehicle due to diminishing driver attention, such as daydreaming and careless driving, the system reduces the vehicle speed, alerts the driver and assists the steering to keep the vehicle inside the lane.

2) In-Lane Collision Avoidance Assist Technology

When there is the risk of a collision with a pedestrian, bicycle or vehicle, and the system determines that there is enough space within the lane traveled by the vehicle to avoid a collision, the system continues reducing the vehicle speed within the lane and assists the driver's effort to avoid the collision.

3) Emergency Steering Support Technology

When there is the risk of a collision with a pedestrian, bicycle or vehicle, and when the driver makes steering operation, the system continues reducing the vehicle speed and assists the steering.

Technology to detect the driver's condition and risk factors to assist frontal collision avoidance

*2 Specifications of the function may vary depending on the country, region and time of application of this function.

＜The next-generation technologies of Honda SENSING Elite＞

Honda will accelerate the advancement of Honda SENSING Elite, a flagship variation of Honda SENSING featuring advanced safety technologies. The application of Honda's original AI, which "grows" while accumulating experiences much like humans, enables the system to increase its capability to recognize complex situations and handle more complex driving environments such as on non-expressways. In this way, Honda will strive to develop technologies that will assist the driver achieve a safe and seamless ride from home to their destination with complete peace of mind on any roads including non-expressways.

To be more specific, Honda will continue making progress in the development of technologies to assist the driver on non-expressways including a hands-off function while driving through a traffic jam on arterial roads; to enable hands-off functions during merging onto and exiting from an expressway at a road junction; to assist the driver by automatically parking in and driving out of a home garage. Honda will begin applying these technologies sequentially starting in the mid-2020s.

Honda SENSING Elite Concept Movie

■Driver assistance on non-expressway roads

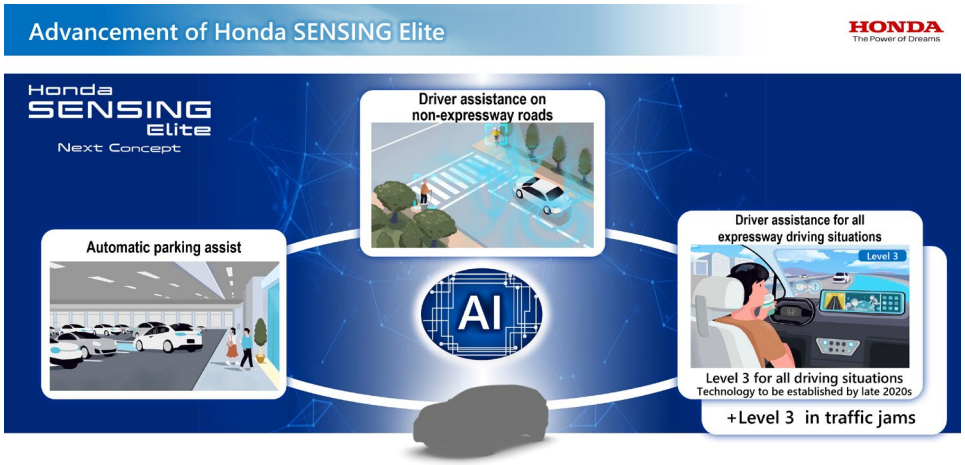
Honda will realize driver assistance on non-expressway roads by utilizing highly sophisticated recognition and control technologies that can handle a complex traffic environment. To be more specific, Honda will aim to introduce technologies to prevent collisions based on the risk prediction, as well as Adaptive Cruse Control (ACC) and Lane Keeping Assist System (LKAS) for non-expressway roads to reduce driver burden, and the hands-off function while driving in a traffic jam on arterial roads.

■Automatic parking assist

Honda Sensing Elite now offers a function to automatically park in and drive out of the garage of a single-family home or pre-assigned parking spot in a residential garage complex. In the future, Honda will strive to realize an “automated valet parking” function which will enable the customers to hail or get off their vehicle anywhere they go, in addition to their home.

■Driver assistance for all expressway driving situations

In addition to existing lane keeping, lane changing and Traffic Jam Pilot functions, Honda SENSING Elite now features a driver-assistive function for merging onto and exiting an expressway.



With technology that recognizes and understands the complex environments of non-expressway roads, the system assists the driver in achieving a safe and seamless ride from home to their destination with complete peace of mind on any roads, now including non-expressways.