Piaggio Fast Forward Develops New Sensor Technology for Consumer and Enterprise Robots and for Motorcycle and Scooter Safety (ARAS)

Highlights:

- Piaggio Fast Forward (PFF) reveals trailblazing sensor technology for consumer and business robots as well as motorcycles and scooters
- Piaggio Group motorcycles and scooters featuring an innovative sensor technology package developed, built and supplied by PFF including 4D imaging radar provided by Vayyar expected to debut in 2022 with PFF robots launching in late 2021
- Vayyar Imaging, the global leader in 4D imaging radar, supplying the RoC (Radar-on-Chip) for the sensor package developed, built and supplied by PFF for mass production in Advanced Rider Assistance Systems (ARAS) and robots

(Boston - USA, Italy and Israel, August 5, 2021) -- Piaggio Fast Forward (PFF), the Boston-based robotics company controlled by Piaggio Group (PIA.MI) and a leader in smart following technology, has developed new sensor technology for implementation not only in consumer and business robots but also in scooters and motorcycles.

Founded in 2015 by the Piaggio Group, PFF has previously focused on advancing innovation in smart following technology and smart behavior implementation in robots and machines, but in a strategic decision last year, began developing a custom radar sensor module for use first in Piaggio Group motorcycles and scooters with the intention to provide the technology to other companies in the future.

PFF's hardware-software modules offer uncompromising safety by providing robust monitoring in all environmental and lighting conditions. PFF awarded a supply contract for the modules' Radar-on-Chip to Vayyar Imaging, marking the deployment of the industry's first ever 4D imaging radar-based motorcycle safety platform. The complete sensor package is developed, built and supplied by PFF for mass production in Piaggio Group motorcycles' Advanced Rider Assistance Systems (ARAS).

ARAS applications are on the front line of the battle to prevent collisions and protect motorcycle riders. ARAS technology meets the rigorous technological requirements of traditional driver assist functions, addressing additional motorcycle-specific challenges such as size constraints and seamless vehicle maneuverability at high-tilt angles.

The PFF modules use Vayyar's mmWave 4D imaging Radar-on-Chip (RoC) sensor, enabling multiple ARAS functions such as Blind Spot Detection (BSD), Lane Change Assist (LCA) and Forward Collision Warning (FCW) with a single sensor supporting a range of over 100m, and an ultra-wide field-of-view. PFF robots incorporating the radar technology are expected to be released at the end of 2021, with Piaggio Group motorcycle models equipped with the PFF sensor module launching in 2022.

“PFF is creating advanced technology products for robots and motorcycles that detect and measure objects in our surroundings to provide the information we need for mapping, object detection, and control, regardless of lighting, weather and other environmental factors. We have chosen to develop our sensing applications with Vayyar’s 4D imaging radar technology. We are excited to work with such a professional, passionate team, to develop innovative new solutions that provide our customers with a better product experience.” Greg Lynn, CEO at Piaggio Fast Forward.

The Vayyar 4D imaging radar technology being used in both PFF robots and PFF sensing modules developed for the motorcycle industry supports a large Multiple Input Multiple Output (MIMO) array that enables ultra-high resolution point cloud imaging for holistic monitoring of a robot’s and a vehicle’s surroundings. This high-performance sensor incorporates sophisticated single-chip 4D imaging radar technology, featuring an ultra-wide field of view (both in azimuth and elevation) with no dead zones, detecting and tracking multiple targets. Its small form-factor is engineered to address the unique challenges of motorcycle and robotics design.

“We’re very excited to partner with PFF, who are at the forefront of sensor technology, both in terms of harmonization with rider experience on two- and three-wheeled products, as well as application in their innovative robots. Motorcycle riders are among the most vulnerable road users, and this is a big step forward in reducing their risk of collision,” says Ilan Hayat, Director of Business Development at Vayyar Imaging. “Regardless of vehicle type, rider safety should not be compromised, and by partnering with PFF we are thrilled to deliver an automotive standard of safety to motorcycles”, added Hayat.

About Piaggio Fast Forward

Smart following technology leader Piaggio Fast Forward (PFF) is a Boston-based company founded in 2015 by the Piaggio Group, the Italian manufacturer and creator of the iconic Vespa scooter. PFF has an extensive knowledge of pedestrian mobility and uses this knowledge to create innovative mobile tech solutions that move the way people move—to help people walk more, walk farther, and to allow them to do more of their everyday living on foot. PFF’s first product, the gita robot (pronounced “jee-ta,” Italian for “short trip”), is a first-of-its-kind following robot that can carry 40 pounds of gear for up to 4 hours, or roughly 20 miles of walking, on a single charge. gita efficiently navigates pedestrian-dense environments using computer sensor vision; it takes in information and adapts to its environment in real time with human-like pedestrian etiquette. gita pairs to, follows, and reacts to its user without the need of GPS, allowing it to travel both indoors and outdoors seamlessly. The gita robot was introduced to the consumer market in 2019 followed by a series of scalable pilot programs with partners across select industries including travel, hospitality, real estate, retail, local food delivery and more in an effort to expand how gita assists consumers and employees in commercial spaces. PFF’s vision is to move toward a sustainable mobility ecology where cities are centered around people over cars, and value transportation systems that support healthier lifestyles, cleaner environments and stronger local economies. For more information, visit https://business.piaggiofastforward.com/

About Piaggio Group

Established in 1884, Piaggio Group is the largest scooter and motorcycle manufacturer in Europe and one of the global leaders in the sector. The Piaggio Group has been listed on the Italian stock exchange since 2006 and has three main business lines: 2 and 3 wheelers

(scooters and motorcycles), light commercial vehicles and robotics (PFF). The Group's portfolio includes some of the most iconic and famous brands in the light mobility industry, such as: Piaggio, Vespa, Moto Guzzi, Gilera, Derbi, Ape and Piaggio Commercial. Piaggio Group counts more than 6.600 employees, it has a distribution in more than 100 countries and six industrial plants (in Italy, India, China and Vietnam). The Group also has four research and development centers, which employ approximately 1,000 people.

About Vayyar

Vayyar's intelligent sensors create holistic safety opportunities for in-cabin and ADAS, using automotive-grade 4D imaging radar technology. At the core of these sensors is a high-performance Radar-on-Chip that supports up to 48 transceivers for exceptional resolution. With an ultra-wide field of view, Vayyar's 60GHz and 79GHz single-chip radar modules cover large areas to reduce the number of sensors in vehicles. They provide comprehensive detection in and around the vehicle, while simultaneously tracking multiple targets and objects. Vayyar technology is multifunctional, affordable and available for mass production. The radar-based platform is robust in all road conditions, while protecting user privacy. Vayyar plans to continue developing the next generation of sensor technology that is miniature, affordable and versatile enough to enable a safer world.

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This press release contains statements related to the parties' future business and future events that may constitute "forward-looking statements." Forward looking statements can generally be identified by use of terms such as "anticipate," "believe," "continue," "could," "estimate," "expect," "intend," "likely," "may," "plan," "predict," "potential" "should," or the negative of such terms and other comparable terminology. Such forward looking statements are not guarantees of future performance and involve known and unknown risks, uncertainties, and other factors, many of which are beyond the control of the parties, that may cause actual results to differ materially from those expressed or implied in such statements. Forward looking statements set out in this press release are current as of the date of this press release and are based on several estimates and assumptions that are subject to business, economic and competitive uncertainties, and contingencies, with respect to future business decisions, which are subject to change. The parties undertake no obligation to update or revise the information contained in this press release, whether because of new information, future events, or circumstances or otherwise.

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