GreyOrange Launches Next Era Fulfillment Operating System Driven by GreyMatter™ Software Integrated with Ranger™ Series Mobile Robots

Fulfillment Operating System optimises fulfillment for omnichannel, store replenishment and e-commerce to modernise distribution centres –

GreyOrange, a global software and mobile robotics provider that leverages artificial intelligence and machine learning to optimise fulfillment operations, today announced the latest release of its Fulfillment Operating System, which integrates GreyMatter software with the company's series of mobile robots.

GreyOrange is the only company that integrates software and robots built together specifically to improve order fulfillment throughput, scale, accuracy and economics. This release embodies capabilities that optimise fulfillment for companies with omnichannel and e-commerce needs and increases store efficiency by packing replenishment orders according to individual store layouts and preferences. It also expands the orchestration of data and actions across the Company's series of Ranger™ mobile robots.

Ranger robots are developed in concert with GreyMatter software and use machine learning to adjust decisions and behavior based on real-time observations. Additionally, *maximum-life* engineering ensures every Ranger robot delivers 'last and learn' value. Communication among the robots and the GreyMatter central system incorporates that learning so the entire system continues to get smarter. The robots are:

- Ranger GTP (formerly Butler) – Goods-to-person mobile robots that transport inventory from 220 to 3,500 pounds to workers for picking and packing;
- Ranger Mobile Sorter (formerly Flexo) – Mobile sortation robots that operate in fleets to efficiently and fluidly move parcels from receiving through dispatch to avoid sortation bottlenecks that can occur with rigid systems, especially during periods of peak volumes;
- Ranger Picking (formerly PickPal) – A picking robot designed to work in tandem with goods-to-person robots to either assist humans with picking orders or to pick orders autonomously in manned or unmanned warehouses.

GreyMatter intelligence is incorporated as a learning layer in the Ranger robots so that as they operate, they can adapt to what is happening within the distribution centre and externally, as order patterns and fulfillment expectations fluctuate. The robots communicate with each other and with the GreyMatter central system so it can continuously recalculate order fulfillment priorities and inventory movement patterns based on real-time factors such as order fulfillment commitments, actual fulfillment speeds, available resources and time remaining in dispatch windows.

"Synthesising GreyMatter with a family of individually purposed robots that are built to be collaborative with each other and with the GreyMatter hub makes GreyOrange unique in the industry; it represents the culmination of many years of intensive research and development by the Company," said Akash Gupta, Chief Technology Officer for GreyOrange. "We've seen the performance benefits of designing artificial intelligence-driven software and mobile robotics together, so that each enhances the learning and adaptation of the other, rather than alternative approaches that simply interface software and robots," he added.

By adding numerous adaptive-learning, self-learning, collaborative decision-making and analytics enhancements to GreyMatter and the Ranger robot series, GreyOrange can more intelligently connect people, processes and technology to modernise fulfillment for throughput speed, scale, accuracy and yield.

"Many companies are struggling to keep up with expectations for same-day and next-day delivery along with store replenishment runs that are required two to three times per week or even daily," said Samay Kohli, Chief Executive Officer for GreyOrange. "They are trying to meet modern fulfillment demands using software and hardware built for a time before Amazon changed the game for everyone by accelerating

collective expectations. The idea that software and robots built together using the same intelligence is required in a modern Fulfillment Operating System is unique to GreyOrange, and represents the only solution built specifically to address modern fulfillment challenges," he added.

Many of the enhancements in GreyMatter are centred on data pattern intelligence and the ability of mobile robots to operate at scale across a distribution centre, including retrieving and placing inventory racks on multiple floors or mezzanines using elevator access. Together, GreyMatter and Ranger robots comprise a Fulfillment Operating System designed for fast-paced, high-volume, high-product-variety operations, unlike disparate hardware and software solutions built for an earlier time and interfaced together in a complex technology system.

GreyMatter further enhances prioritised order fulfillment at scale, both predictively and in real time, by continuously considering inventory positions, orders, promise dates, cost impacts, revenue implications, labor available, time available and fleets of robots available. The software then orchestrates how the Company's robots navigate across a distribution centre, working autonomously or alongside people, to ensure the right inventory is at the right place at the right time to fulfill the decisions made in priority order, even during times of peak pace and volume.

GreyOrange terms the outcome High-Yield Fulfillment, meaning the payoffs from orders filled and dispatched are greater than the tradeoffs from orders that could have been fulfilled earlier but were assigned a later fulfillment time by the system.

About GreyOrange
GreyOrange is a global company that modernises order fulfillment through Artificial Intelligence-driven software and mobile robots built together so they cooperate in deciding on and executing warehouse activities that maximise payoffs and minimise tradeoffs to create the highest yield. The company's next era Fulfillment Operating System driven by *always-solving* GreyMatter software considers predictive and real-time data regarding orders, promises, inventory, shipping windows, and resources to orchestrate how workers and robots work as a team to fulfill the right orders at the right time. GreyOrange experts help organisations master fulfillment in the Age of Immediacy so they keep promises, capture more revenue, and improve the work experience for warehouse employees. GreyOrange has core operations in the United States, Singapore, Germany, Japan and India. www.GreyOrange.com

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