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GeckoSystems to Enhance Japanese Wheelchairs With Mobile Robot Solutions

CONYERS, GA--(Marketwire - May 6, 2011) - GeckoSystems Intl. Corp, a dynamic leader in the emerging mobile robotics industry revolutionizing their development and usage with "Mobile Robot Solutions for Safety, Security and Service™," (PINKSHEETS: [GOSY](http://www.geckosystems.com/)) (<http://www.geckosystems.com/>) -- announced today that they expect receipt in late May of the first wheelchairs from Imasen Engineering Corporation, Japan's oldest wheelchair manufacturer. This order to upgrade was secured by GeckoSystems' long time Japanese business development representative, Mr. Hajime Yasumatsu (Chairman of Yasu, Inc.) and a recently signed representative, Mr. Tsunenuri Kato (President/CEO of ifoo Co., Ltd.). They jointly secured GeckoSystems' first Japanese order.

Due to the recent Japanese catastrophic earthquake and consequent tsunami, the shipment was initially delayed.

"We have worked diligently for more than ten years to secure a foothold in the world's fourth largest economy, Japan. Because of these many years of failures and our numerous sales attempts, I am very pleased to announce this shipment for the initial order for our 'collision proof' wheelchair upgrade kits," stated Martin Spencer, President/CEO, GeckoSystems. "We give full credit to Mr. Yasumatsu's and Kato's tenacity and hard work in achieving this noteworthy milestone. We expect receipt of one of the first two of Imasen's state of the art wheelchairs for our 'collision proof' upgrading at our R&D lab late this month since they are being shipped by economical marine freight due to their weight."

GeckoSystems recently announced that GeckoImager™ enables this new product development. This invention uses sensor fusion incorporating structured light machine vision and sonar range finding to compliment GeckoOrient's™ solid-state compass, accelerometer and odometry sensor fusion. This provides its automatic, self-navigation artificial intelligence (AI) software, GeckoNav™, with sufficient and timely data to achieve actionable situation awareness while providing a very safe, loose crowd level of autonomy to be "collision proof."

The upgrade kit (GWK001) leverages core technologies GeckoSystems has developed for its flagship product, the CareBot™, combined with recent advances in sensor technology, to create a cost effective upgrade kit for wheelchair obstacle avoidance. The recent creation of GeckoImager and its ability to fuse multiple stationary sensors to achieve the level of situational awareness required for

navigation has allowed GeckoSystems to pursue this new application.

The GWK001 recently sold to Imasen, may be added to most joystick operated electric wheelchairs. The wheelchair occupant would simply move the joystick in the direction they wish to go. Then GeckoNav -- in concert with multiple GeckoSavants™ managed by the GeckoSuper™ -- would automatically seek the desired direction while avoiding any and all stationary or moving obstacles. The cost to the end user, completely installed, is only a few thousand dollars for this heightened level of safety for not only the occupant of the wheelchair, but also those persons around them.

"I am very pleased to have been able to provide GeckoSystems with this initial order from Imasen. It is an honor for me to work with companies that focus on safety first, Imasen in Japan, and GeckoSystems in the U.S. I am working very hard to secure other meaningful relationships in Japan for GeckoSystems," concluded Mr. Kato.

"For more than a year now, I have engaged in many attempts to establish collaboration with GeckoSystems and good partners in Japan. I am happy and pleased that Mr. Kato has joined us. This first order from Imasen is a very important first step in demonstrating to other Japanese robot companies and enterprises the value of GeckoSystems' mobile robot solutions," reflected Mr. Yasumatsu.

"I am very excited about the opportunity to apply our extensive knowledge of autonomous navigation of mobile platforms to this new product. The benefits to the safety and peace-of-mind of both the occupant and those around them make this a very rewarding project to be a part of," stated Kevin O'Connor, Sr. EE Robotician, GeckoSystems.

GeckoSystems has multiple sources available in the U.S. and Pacific Rim other than Microsoft for the PrimeSense depth camera solution, presently the Kinect. Since the upgraded wheelchair is more safe, not less, with the incorporation of the multiple sensor systems and AI software, product liability is expected to be less than that of an unmodified wheelchair. Since mobile service robots are not presently regulated in Japan or the U.S., no regulatory approvals such as the FDA, UL, etc. are expected. (This underscores the mobile robot safety summit meeting's importance last December of GeckoSystems' CEO and two senior Japanese government representatives. This is why they requested the meeting: to learn what safety standards were needed and how to achieve them with appropriate regulations.)

GeckoSystems' management believes that due to the increased costs of the logistics of shipping computer hardware and subsystems from halfway around the world and back again that these initial sales should evolve into a technology

licensing agreement with Imasen to eliminate these redundant and unnecessary shipping costs.

"Imasen is ideally positioned in the Japanese marketplace due to its wheelchair manufacturing capability and existing distribution into the home medical equipment (HME) and durable medical equipment (DME) markets. Further, since the mechanicals and locomotion system are the primary cost drivers for the manufacture of mobile service robots, we are very encouraged by several ongoing conversations with Imasen and other notable Japanese manufacturers by Mr. Kato and Mr. Yasumatsu," opined Mr. Spencer.

Mr. Spencer concluded: "Of course due to the delicacy and sensitivity of those discussions, it would be inappropriate to reveal them at this time. However, given the demonstrable performance by Mr. Kato and Mr. Yasumatsu, I believe there is reason for continued optimism and additional successes. This important first step positions us on the cusp between being a Development Stage company and an Emerging Growth company. This reality augurs well for our nearly 1,400 stockholders and a satisfying ROI for them."

About Yasu, Inc.:

Yasu is a U.S. corporation domiciled in Missouri that provides professional services including business development support, networking events, extensive market intelligence, access to bilingual Japanese businesses, and English to Japanese translation of sales and technical information.

About Imasen Engineering Corporation:

Imasen electric wheelchairs are dedicated to the pursuit of safety and comfort, designed to be an indispensable and supportive component of one's life. They have been developed not only to be comfortable for the rider, but also easy for caretakers to operate, easy on the environment, and pleasant to look at with an attractive design.

<http://www.imasengiken.co.jp/en/index.html>

About the CareBot:

GeckoSystems has focused on mobile robot safety for over thirteen years. Their first product, a family care robot, has multiple layers of safety precautions. These safeguards are enabled three ways: mechanical, electronic, and using AI computer software.

First, the robot is very stable and difficult to tip over since nearly seventy percent of its weight is less than eight inches above the floor and sits low between large, ten-inch diameter wheels. The wheels are wide and soft enough such that if the robot did go over a child's arm, for example, it would not break

the skin or any bones.

Second, multiple layers of sensors are fused to provide a safety umbrella to enable actionable situational awareness. Going outward from the center of the CareBot is the GeckoTactileShroud™, which detects where on its shroud it has been bumped by people or animals. The GeckoImager™ detects virtually everything in the front and to the sides of this fully autonomous mobile robot up to sixty inches. Obstacles more distant are detected by twin ultrasonic rangefinders.

Third, the advanced AI navigation software, GeckoNav™, takes in the hundreds of sensor readings per second and using its high level situational awareness, consistently avoids unforeseen static and/or dynamic obstacles for safe movements.

Like an automobile, the CareBot is made from steel, aluminum, plastic, and electronics, but with ten to twenty times the amount of software running. It has an aluminum frame, plastic shroud, two independently driven wheels, multiple sensor systems, microprocessors and several onboard computers connected by a local area network (LAN). The microprocessors directly interact with the sensor systems and transmit data to the onboard computers. The onboard computers each run independent, highly specialized cooperative/subsumptive artificial intelligence (AI) software programs, GeckoSavants, which interact to complete tasks in a timely, intelligent and common sense manner. GeckoSuper, GeckoNav, GeckoChat, GeckoScheduler and GeckoTrak are primary, high level GeckoSavants. GeckoNav is responsible for maneuvering, avoiding dynamic and/or static obstacles, seeking waypoints and patrolling. GeckoChat is responsible for interaction with the care-receiver such as answering questions, assisting with daily routines and reminders, and responding to other verbal commands. GeckoTrak, which is mostly transparent to the user, enables the CareBot to maintain proximity to the care-receiver using sensor fusion. The CareBot is a new type of Internet appliance, a personal assistant life support robot, which is accessible for remote video/audio monitoring and telepresence.

About the Company:

Since 1997, GeckoSystems has developed a comprehensive, coherent, and sufficient suite of hardware and software inventions to enable a new type of home appliance (a personal companion robot) the CareBot™, to be created for the mass consumer marketplace. The suite of primary inventions includes: GeckoNav™, GeckoChat™ and GeckoTrak™.

The primary market for this product is the family for use in eldercare, care for the chronically ill, and childcare. The primary distribution channel for this new home appliance is the thousands of independent personal computer retailers in the U.S.

The manufacturing infrastructure for this new product category of mobile service robots is essentially the same as the personal computer industry. Several outside contract manufacturers have been identified and qualified their ability to produce up to 1,000 CareBots per month within four to six months.

The Company is market driven. At the time of founding, nearly 14 years ago, the Company did extensive primary market research to determine the demographic profile of the early adopters of the then proposed product line. Subsequent to, and based on that original market research, they have assembled numerous focus groups to evaluate the fit of the CareBot personal robot into the participant's lives and their expected usage. The Company has also frequently employed the Delphi market research methodology by contacting and interviewing senior executives, practitioners, and researchers knowledgeable in the area of elder care. Using this factual basis of internally performed primary and secondary market research, and third party research is the statistical substance for the Company's sales forecasts.

Not surprisingly the scientific statistical analyses applied revealed that elderly over sixty-five living alone in metropolitan areas with broadband Internet available and sufficient household incomes to support the increased costs were identified as those most likely to adopt initially. Due to the high cost of assisted living, nursing homes, etc. the payback for a CareBot is expected to be only six to eight months while keeping elderly care receivers independent, in their own long time homes, and living longer due to the comfort and safety of more frequent attention from their loved ones.

The Company's "mobile robot solutions for safety, security and service™" are appropriate not only for the consumer, but also professional healthcare, commercial security and defense markets. Professional healthcare require cost effective, timely errand running, portable telemedicine, etc. Homeland Security requires cost effective mobile robots to patrol and monitor public venues for weapons and WMD detection. Military users desire the elimination of the "man in the loop" to enable unmanned ground and air vehicles to not require constant human control and/or intervention.

The Company's business model is very much like that of an automobile manufacturer. Due to the final assembly, test, and shipping being done based on geographic and logistic realities; strategic business-to-business relationships can range from private labeling to joint manufacturing and distribution to licensing only.

Several dozen patent opportunities exist for the Company due to the many innovative and cost effective breakthroughs embodied not only in GeckoNav, GeckoChat, and GeckoTrak, but also in additional, secondary systems that include: GeckoOrient™, GeckoMotorController™, the GeckoTactileShroud™, the

GeckoImager™, and the GeckoSPIO™.

What Does a CareBot Do for the Care Giver?

The short answer is that it decreases the difficulty and stress for the caregiver that needs to watch over Grandma, Mom, or other family members most, if not much, of the time day in and day out due to concerns about their well being, safety, and security.

But, first let's look at some other labor saving, automatic home appliances most of us use routinely. For example, needing to do two or more necessary chores and/or activities at the same time, like laundering clothes and preparing supper.

The automatic washing machine needs no human intervention after the dirty clothes are placed in the washer, the laundry powder poured in, and the desired wash cycle set. Then, this labor saving appliance runs automatically until the washed clothes are ready to be placed in another labor saving home appliance, the automatic clothes dryer. While the clothes are being washed and/or dried, the caregiver prepares supper using several time saving home appliances like the microwave oven, "crock" pot, blender, and conventional stove, with possible convection oven capabilities.

After supper, the dirty pots, pans, and dishes are placed in the automatic dishwasher to be washed and dried while the family retires to the den to watch TV, and/or the kids to do homework. Later, perhaps after the kids have gone to bed, the caregiver may then have the time to fold, sort, and put up the now freshly laundered clothes.

So what does a CareBot do for the caregiver? It is a new type of labor saving, time management automatic home appliance.

For example, the care giver frequently feels time stress when they need to go shopping for 2 or 3 hours, and are uncomfortable when they have to be away for more than an hour or so. Time stress is much worse for the caregiver with a frail elderly parent that must be reminded to take medications at certain times of the day. How can the caregiver be away for 3-4 hours when Grandma must take her prescribed medication every 2 or 3 hours? If the caregiver is trapped in traffic for an hour or two beyond the 2 or 3 they expected to be gone, this "time stress" can be very difficult for the caregiver to moderate.

Not infrequently, the primary caregiver has a 24 hour, 7 days a week responsibility. After weeks and weeks of this sometimes tedious, if not onerous routine, how does the caregiver get a "day off?" To bring in an outsider is expensive (easily \$75-125 per day for just 8 hours) and there is the concern that medication will be missed or the care receiver have an accident requiring immediate assistance by the caregiver, or someone they must designate. And the

care receiver may be very resistant to a "stranger" coming in to her home and "running things."

So what is it worth for a care receiver to have an automatic system to help take care of Grandma? Just 3 or 4 days a month "off" on a daylong shopping trip, a visit with friends, or just take in a movie would cost \$225-500 per month. And that scenario assumes that Grandma is willing to be taken care of by a "stranger" during those needed and appropriate days off.

So perhaps, an automatic caregiver, a CareBot, might be pretty handy, and potentially very cost effective from the primary caregiver's perspective.

What Does a CareBot Do for the Care Receiver?

It's a new kind of companion that always stays close to them enabling family and friends to care for them from afar. It tells them jokes, retells family anecdotes, reminds them to take medication, reminds them that family is coming over soon (or not at all), recites Bible verses, plays favorite songs and/or other music. It alerts them when unexpected visitors, or intruders are present. It notifies designated caregivers when a potentially harmful event has occurred, such as a fall, fire in the home, or simply been not found by the CareBot for too long. It responds to calls for help and notifies those that the caregiver determined should be immediately notified when any predetermined adverse event occurs.

The family can customize the personality of the CareBot. The voice's cadence can be fast or slow. The intonation can be breathy, or abrupt. The voice's volume can range from very loud to very soft. The response phrases from the CareBot for recognized words and phrases can be colloquial and/or unique to the family's own heritage. The personality can range from brassy to timid depending on how the care giver, and others appropriate, chooses it to be.

Generally, the care receiver is pleased at the prospect of family being able to drop in for a "virtual visit" using the onboard webcam and video monitor for at home "video conferencing." The care receiver may feel much more needed and appreciated when their far flung family and friends can "look in" on them anywhere in the world where they can get broadband internet access and simply chat for a bit.

Why is Grandma really interested in a CareBot? She wants to stay in her home, or her family's home, as long as she possibly can. What's that worth? Priceless. Or, an average nursing home is \$5,000 per month for an environment that is too often the beginning of a spiral downward in the care receiver's health. That's probably \$2-3K more per month for them to be placed where they really don't want to be. Financial payback on a CareBot? Less than a year- Emotional payback for the family to have this new automatic care giver? Nearly instantaneous-

Facebook: <http://www.facebook.com/group.php?gid=140182685996116&v=wall>

YouTube: Kinect Enabled Personal Robot video: <http://www.youtube.com/watch?v=kn93BS44Das> In this video one will observe static and dynamic obstacle avoidance into and back out of a cluttered and narrow "gauntlet alley." One may determine that the movements are smoother than what most people could do using a joystick, human controlled mobile platform. One will witness three low levels of obstacle avoidance: reactive, proactive, and contemplative. No prior mapping or path planning was performed before or during the demonstration run. GeckoNav, the AI savant doing the guiding, controls all mobile activities during this demo. You will witness subsumptive AI behaviors occurring as obstacle avoidance subsumes way point seek and vice versa with an emergent behavior expressed as errand running down a cluttered hallway and back without any human intervention.

Elder Care Robot Trial Video 2, Stationary View http://www.youtube.com/watch?v=smUNNIs4LJtY&feature=player_embedded#at=16

One CareBot™ One Family http://www.youtube.com/watch?v=xxK46chfP6A&feature=mfu_in_order&list=UL

Mobile Robot Navigates Dining Room & Kitchen http://www.youtube.com/watch?v=S_jd9_0W9mE&feature=mfu_in_order&list=UL

Safe Harbor:

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