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## **GeckoSystems Reduces Sensor Fusion Costs Due to Elder Care Robot Trials**

CONYERS, GA--(Marketwire - December 14, 2010) - GeckoSystems Intl. Corp. (PINKSHEETS: [GOSY](#)) announced today that their sensor fusion system, GeckoOrient™, had been significantly cost reduced while maintaining prior performance and reliability levels. GeckoSystems is a dynamic leader in the emerging mobile robotics industry revolutionizing their development and usage with "Mobile Robot Solutions for Safety, Security and Service™."

"The newly improved GeckoOrient 2.0 further leverages the distinct advantages of multiple unique sensors in order to produce accurate information regarding robot orientation at a much lower cost than a single sensor of comparable performance. Testing has shown the data update rates and accuracy from GeckoOrient have maintained or improved performance while significantly reducing costs. The primary enabler for these cost saving improvements is the robust and flexible nature of the GeckoSPIO™, specifically its support of a wide variety of communications protocols," observed Kevin O'Connor, Sr. EE Robotist, GeckoSystems.

The GeckoSPIO is the critical interface between the robot's physical platform and higher AI functions. This interface provides a level of abstraction for the commands sent to, and the data sent from, the robot platform. The abstraction and hierarchal architecture the GeckoSPIO provides simplifies interacting with the platform and the real world for the high-level software, along with enabling a wide array of sensor fusion techniques.

"Our sensor loving, fully autonomous AI guidance software, GeckoNav™, continues to perform in its exemplary manner to sense and avoid collisions, without human intervention. The new, more cost effective GeckoOrient reduces the funds needed to expand our ongoing, world's first in home elder care robot trials," observed Martin Spencer, President/CEO, GeckoSystems.

According to Wikipedia: "Sensor fusion is the combining of sensory data or data derived from sensory data from disparate sources such that the resulting information is in some sense better than would be possible when these sources were used individually."

Every day we use "sensor fusion" in our routine activities. For example, we smell smoke and then look for a grayish cloud to determine the source of the smoke, its

proximity, and consequent degree of danger to us. In noisy crowds when we talk with someone, we use lip reading to enable us to understand what we don't hear clearly. Humans use sensor fusion every day to make choices based on data that is interdependent, or incomplete, versus using only one of our five senses. The better the sensor fusion, the better the choices and the more "actionable" the "situation awareness" is.

GeckoSystems employs proprietary sensor fusion technologies not only in its flagship automatic self-navigation software, GeckoNav, but also in GeckoTrak™, the GeckoSPIO, and GeckoOrient. GeckoTrak uses advanced sensor fusion to merge machine vision, passive infrared, and sonar to identify and/or locate the person of interest such that GeckoTrak can inform GeckoNav automatically as to the whereabouts of the designated person for continuous proximate monitoring. GeckoOrient automatically and intelligently merges sensor data from odometry (dead reckoning), a solid-state compass, and accelerometer-based gyroscopes (IMUs), for enhanced orientation accuracy while errand running, patrolling, or following a designated person.

"Our ongoing world's first in home elder care robot trials have garnered many inquiries for us regarding our business model, technologies available for licensing, and interest in joint domestic and international ventures. We continue to expect technology-licensing revenues to precede revenues from product manufacturing and sales and have two or three in active discussions. This augurs well for increased ROI and shareholder value for our nearly 1400 investors," summarized Spencer.

About GeckoSystems International Corporation:

About the CareBot:

GeckoSystems has focused on mobile robot safety for over ten years. Their first product, a family care robot, has multiple layers of safety precautions. These safeguards are enabled three ways: mechanical, electronic, and using 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 CompoundedSensorArray™ detects virtually everything in the front and to the sides of this fully autonomous mobile robot up to thirty 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, that 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 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 12 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 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 factual basis for the Company's sales forecasts.

"We project the available market size in dollars for cost effective, utilitarian, multitasking eldercare personal robots in 2011 to be \$74.0B, in 2012 to be \$77B, in 2013 to be \$80B, in 2014 to be \$83.3B, and in 2015 to be \$86.6B. With market penetrations of 0.03% in 2011, 0.06% in 2012, 0.22% in 2013, 0.53% in 2014, and 0.81% in 2015, we will anticipate CareBot sales, from this consumer market segment, only, of \$22.0M, \$44.0M, \$176M, \$440.2M, and \$704.3M, respectively. We expect these sales despite -- and perhaps because of -- the present recession due to pent up demand for significant cost reduction in eldercare expenses," opined Spencer.

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 CompoundedSensorArray™, and the GeckoSPIO™.

The present senior management at GeckoSystems has over thirty-five years experience in consumer electronics sales and marketing and product development. Senior managers have been identified for the areas of manufacturing, marketing, sales, and finance.

By the end of this year, the Company plans to complete productization of its CareBot offering with the introduction of its fourth generation personal robot, the CareBot 4.0 MSR.

## 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 caregiver 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 caregiver, 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-*

Safe Harbor:

Statements regarding financial matters in this press release other than historical

facts are "forward-looking statements" within the meaning of Section 27A of the Securities Act of 1933, Section 21E of the Securities Exchange Act of 1934, and as that term is defined in the Private Securities Litigation Reform Act of 1995. The Company intends that such statements about the Company's future expectations, including future revenues and earnings, technology efficacy and all other forward-looking statements be subject to the Safe Harbors created thereby. The Company is a development stage firm that continues to be dependent upon outside capital to sustain its existence. Since these statements (future operational results and sales) involve risks and uncertainties and are subject to change at any time, the Company's actual results may differ materially from expected results.

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