

GeckoSystems Improves AI Savant Management Due to Elder Care Robot Trials

CONYERS, Ga., Apr. 26, 2010 -- GeckoSystems Intl. Corp. (Pink Sheets: GCKO | <http://www.geckosystems.com/>) -- reported today that they have advanced the capabilities of their uppermost GeckoSavant(tm), the GeckoSuper(tm). 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(tm)."

"Real world testing and development enables automotive manufacturers such as Ford, GM, Chrysler, Honda, BMW, and others to improve the reliability and performance of their mainstream product lines. Mobile robot development, especially personal companion robot development, is no different," remarked Martin Spencer, President/CEO, GeckoSystems.

"As we continue our world's first in home elder care robot trials, we keep on learning more from these real world tests, just as NASCAR racing participation enables domestic manufacturers to design more efficient engines, better brakes, improved handling, and greater safety. Since we are pioneers in this emerging marketplace, these trials have given us important insights and numerous ideas as to how to improve the cost effective utility and benefit to the care giver and care receiver. Our now fourth generation GeckoSuper in the last five years is substantive testimony as to the many technological barriers we have demonstrably solved since our founding over twelve years ago," continued Spencer.

GeckoSuper is an AI/expert system responsible for system-wide orchestrated subsumption. At its simplest, subsumption means organizing various simple behaviors into layers. Low-level layers contain the most basic behaviors (eg. avoid an obstacle), while high-level layers can be thought of as more abstract behaviors (eg explore the surroundings). This is a bottom-up approach; low-level layers can override the high-level layers as necessary. The end result is an approach where high-level layers provide an overall goal for the AI system to achieve whereas the low-level layers provide the means.

This approach summarizes GeckoSuper perfectly. Its ability to receive data from other GeckoSavants and make decisions based upon that data means that GeckoSuper can provide a general directive for the robot to currently execute without having to actually worry about how it is carried out. This frees up GeckoSuper to instead focus on prioritization; given two or more inputs, GeckoSuper can determine the order in which they need to be addressed. Depending upon the circumstances, this could be interpreted as a form of common sense on the part of the robot.

The inclusion and utilization of so many specialized GeckoSavants running in parallel and mediated by GeckoSuper allows the CareBot to perform comparatively complex tasks in a timely and efficient manner. In GeckoSystems terminology, a GeckoSavant is an AI/expert system that is responsible for and excels at one particular task or group of related tasks. An example would be GeckoScheduler(tm). Version 2.0 has recently been completed to improve the user experience. GeckoScheduler stores the when and frequency of upcoming verbal reminders to waypoint commands, and it will see to it that they are executed at the desired time. How these tasks are carried out is not GeckoScheduler's burden, it only needs to ensure that the appropriate commands are sent when they are needed.

No one GeckoSavant is necessarily the star of the show, however. The nature of subsumption architecture means that various beneficial emergent behaviors can arise. For example, the CareBot can be commanded to move toward a waypoint that is in the middle of a table. The robot will do its best to go there, but its collision avoidance programming will repel it. The end result is that the CareBot circles around the table "looking" for a way to its programmed destination. This means that it is really the combination of multiple savants that allows the CareBot to behave in a complex, intelligent manner. More GeckoSavants mean more opportunities for emergent behaviors. GeckoSuper is built to recognize this advantage, and its

extensibility allows it to easily take in more data with which to make actionable decisions. Combined with its prioritization, GeckoSuper allows the robots to not simply react to stimuli, but gain actionable situational awareness of its surroundings.

This has striking parallels to sensor fusion, another feature that appears in GeckoSystems' suite of mobile service robot technologies. Sensor fusion is the combination of two or more sensory inputs (such as sight and hearing) to achieve greater awareness of the surroundings. For example, you don't just see oncoming cars when you cross the street, you also frequently hear them. Possessing two or more independent inputs not only gives you more information about your environment, but also increased redundancy. For example, if you are temporarily blinded, you can still hear, smell and feel your way around. Similarly, GeckoSuper is able to take data from multiple inputs and use it to paint a portrait of its environment. More independent sensory data sources means a more complete picture and understanding of the environment, whether static or dynamic.

In other words, the end result of GeckoSuper's redesign is numerous applications, including persistent surveillance for monitoring the well being of the elderly, security, etc. In addition, many, if not most, of these actions can be done autonomously with little or no intervention necessary, unless otherwise desired.

“To many, the foregoing GeckoSuper discussion may well be ‘techno-babble.’ Unfortunately the terminology evolves slower than the new technology it describes, as evident with early planes called flying machines and early cars called horseless carriages. Initially personal computer descriptions and explanations were equally obscure. The benefits of and technology behind personal companion robots is difficult to communicate in present every day vernacular. These are still the ‘early days’ of mobile service robot sales and usage,” opined Mark Peele, Vice President, R&D, GeckoSystems.

"GeckoSuper provides the umbrella for our suite of GeckoSavants with the disparate, functional benefits needed to cost effectively provide utility to families for remote care taking of their members and other loved ones, by making them more personal and uniquely adapted, and addressed to the particular person to be assisted. Not only does this capability enable new forms of social interaction and community for families --even when dispersed geographically--, just as ‘racing improves the breed,’ our in home elder care robot trials are teaching us what we need to know to expand our marketplace and increase ROI for our investors," concluded Spencer.

About GeckoSystems International Corporation:

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(tm), to be created for the mass consumer marketplace. The suite of primary inventions includes: GeckoNav(tm), GeckoChat(tm) and GeckoTrak(tm).

Business-to-Business Discussion:

“For the past three months we have been using our suite of mobile robot solutions in our first business-to-consumer (B2C) product, the CareBot(tm), in our elder care robot trials. During this real world testing we have gained sufficient confidence to offer these proprietary solutions to those firms and/or individuals interested in manufacturing and distributing into the various business-to-business (B2B) markets such as professional healthcare, commercial security, public safety, and government. Demonstrably GeckoSystems has viable, cost effective solutions for not only software navigation, verbal interaction, and event scheduling; but also multiple, low cost sensor fusion solutions and differential drive locomotion management,” remarked Spencer.

GeckoNav(tm) is the GeckoSavant(tm) developed by GeckoSystems that enables their mobile robots to express reliable automatic self-navigation and avoid unforeseen obstacles whether static and/or dynamic while ambulating. This is achieved using a low clock, low power x86 CPU. Sometimes this level of autonomy is referred to as “loose crowd capable” due to its fully autonomous (hands off) ability to automatically path find through a loose crowd of moving people.

Another GeckoSavant, GeckoChat(tm), uses voice recognition/synthesis and a forward chaining expert system to enable verbal interaction and/or command and control of the CareBot. GeckoScheduler(tm) is a date and time aware database manager that provides the CareBot with event timing for verbal reminders, errand running, patrolling, tracking, etc. Common sense management and coordination between all GeckoSavants is accomplished using the GeckoSuper(tm).

GeckoOrient(tm) fuses sensor data from three disparate orientation subsystems to achieve better absolute accuracy than any single orientation subsystem, without accumulative error, but at lower cost than a single high accuracy device.

GeckoSystems' CompoundedSensorArray(tm) displaces expensive and slow machine vision solutions with sufficient situation awareness of the environment to enable GeckoNav to avoid even unexpected obstacles while patrolling, following, or errand running.

The GeckoSPIO(tm) is their robot controller board that orchestrates, collects and disseminates hundreds of sensor data inputs per second. Additionally it enables management of the locomotion system in near real time using the GeckoMotorController(tm) which not only minimizes power consumption by careful, adaptive management of the acceleration and de-acceleration of the locomotion motors' speeds, but also enables differential drives to travel in a straight line when requested to do so.

The primary market for their first 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, over twelve 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(tm) 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.

"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 foregoing forecasts do not include sales in non-metropolitan areas; elderly couples over 65 (only elderly living alone are in these forecasts); those chronically ill --regardless of age-- or elderly living with their adult children.

The Company's "mobile robot solutions for safety, security and service(tm)" 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.

Perhaps doing the breakeven analysis for a nursing home or assisted care facility would be insightful. Let's assume, for the sake of this illustration, that the CareBot only checks blood pressure and heart rate for the designated care receivers for 7 days a week, 16 hours per day, or 448 hours per month, automatically with only intermittent direct human management.

A fully burdened cost of ten dollars (\$10.00) an hour would be slightly over thirty-eight percent (38%) minimum wage pay. This infers a total minimum cost for a cost benefit of \$4,480.00 per month for 448 hours of utility. So if the CareBotPro(tm), a larger and more robust version of the CareBot, sold for as much as \$42,500, the "payback" could be as quick as ten months. Electricity for recharging would be a few dollars a month and maintenance needs would be only three to four hours per month for the first two to three years depending on how much physical distance the mobile robot has traveled.

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(tm), GeckoMotorController(tm), the GeckoTactileShroud(tm), the CompoundedSensorArray(tm), and the GeckoSPIO(tm).

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.

While GeckoSystems has been in the Development Stage, the Company has accumulated losses to date in excess of six million dollars. In contrast, the Japanese government has spent one hundred million dollars in grants (to Sanyo, Toshiba, Hitachi, Fujitsu, NEC, etc.) over the same time period to develop personal robots for their eldercare crisis, yet no viable solutions have been developed.

GeckoSystems is the first mobile robot developer in the world to begin actual in-home eldercare evaluation trials.

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-*

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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