

GeckoSystems Cost Reduces Sensor Fusion GeckoSPIO(tm) Due to Elder Care Robot Trials

CONYERS, Ga., Apr. 29, 2010 -- GeckoSystems Intl. Corp. (PINKSHEETS: [GCKO](http://www.geckosystems.com/) | <http://www.geckosystems.com/>) -- announced today that they have further cost reduced their robot controller board, the GeckoSPIO(tm), while improving ease of manufacturability and maintaining robust functionality. 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)."

"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. We are pleased that one of our recently hired electrical engineers has made these improvements," stated Mark Peele, Vice President, R&D, GeckoSystems.

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

The GeckoSPIO enables sensor fusion with seven eight-bit MCU's with eight pulse width modulation (PWM) outputs; over two hundred digital, forty analog to digital, seventeen serial, and two 10/100mhz Ethernet ports. 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."

Everyday 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(tm), but also in GeckoTrak(tm), the GeckoSPIO, and GeckoOrient(tm). 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 (IMU's), for enhanced orientation accuracy while errand running, patrolling, or following a designated person.

Like an automobile, mobile robots are made from steel, aluminum, plastic, and electronics, but with ten to twenty times the amount of software running. The CareBot has an aluminum frame, plastic shroud, two independently driven wheels, multiple sensor systems, microprocessors and several onboard computers connected in 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(tm), which interact to complete tasks in a timely, intelligent and common sense manner. GeckoNav(tm),

GeckoChat(tm) and GeckoTrak(tm) are primary 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 an internet appliance that is accessible for remote video/audio monitoring and telepresence.

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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Source: GeckoSystems Intl. Corp.