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GeckoSystems' New Video Demos Microsoft Kinect Enabled Personal Robot

CONYERS, GA--(Marketwire - January 24, 2011) - GeckoSystems Intl. Corp. (PINKSHEETS: [GOSY](#)) announced today that their recent video demo of their latest CareBot™ incorporates two of Microsoft's Kinect sensors. 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™."

This video shows a GeckoSystems' CareBot™, equipped with a pair of Microsoft Kinect sensors, navigating through a narrow passageway cluttered with various obstacles. This represents the worst case for in-home and/or commercial navigation. GeckoSystems recently announced GeckoImager™ incorporates multiple Kinects for a sufficient field of view (FOV) to be safe, collision proof, and capable of automatic self-navigation.

This new unedited video may be readily viewed at:
<http://www.youtube.com/watch?v=kn93BS44Das>

In it 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.

Microsoft recently announced that over 8 million Kinect sensors were sold within 60 days of its launch in November 2010, making 2010 the biggest year in Xbox history. Microsoft sold around 1.9 million Xbox 360 consoles in December 2010 alone, according to NPD, a market research company.

"Even though we are in very delicate and sensitive discussions with various Microsoft representatives, nonetheless due to the founder of Microsoft, Bill Gates' article, 'A Robot in Every Home' (<http://www.scientificamerican.com/article.cfm?id=a-robot-in-every-home>), gives us basis for belief that their interest is not

cursory and simply polite. Microsoft has invested many man-years creating their mobile robot software development environment, entitled Microsoft® Robotics Developer Studio 2008 R3. Microsoft RDS is a Windows®-based environment for academic, hobbyist, and commercial developers to easily create robotics applications across a wide variety of hardware," stated Martin Spencer, President/CEO, GeckoSystems.

In a recent Nextgov.com article, "Gates: Robots are next hot health technology," (<http://ht.ly/37XrJ>) he is quoted as saying: "Advances in robotics will greatly enhance health care delivery over the next decade." The computer is "learning to see, it's learning to talk, it's learning to listen . . . and it's learning to move around," he said, predicting that ambulatory machines would be relatively cheap in about five years. "The dexterity things are maybe five years behind." The comments came at a conference to showcase advances in mHealth, or mobile health, organized by the National Institutes of Health, the independent nonprofit Foundation for NIH and the mHealth Alliance.

GeckoSystems' recently announced GeckoImager uses sensor fusion interpolates structured light machine vision data from the Kinect sensor with sonar range finding data, complimented by GeckoOrient's™ solid-state compass, accelerometer, and odometry sensor fusion. This provides their automatic, self-navigation AI software, GeckoNav™, with sufficient and timely data to achieve actionable situation awareness resulting in a very safe, loose crowd level of mobile robot autonomy that is "collision proof."

"The demonstrated CareBot automatic self-navigation is accomplished using three high level GeckoSystems' AI savants: GeckoImager, GeckoNav and GeckoSuper. The three savants are spread over two low cost, low power, off-the-shelf dual core Intel Atom motherboards running at 1.66 GHz located on the robot. The computer running GeckoImager is running Ubuntu Linux 10.10 while the computer running GeckoNav and GeckoSuper is running Microsoft Windows XP. Two low-level GeckoSavants, GeckoOrient™ and GeckoMotorController™ run on their robot controller board, the GeckoSPIO. All of the capabilities depicted in this video are running on board on this prototype mobile service robot. I am very pleased to be part of the engineering and programming team that achieved this demonstrable accomplishment," stated Kevin O'Connor, Sr. EE Robotist, Research and Development, GeckoSystems.

Machine vision is a combination of structured lighting, a detector, and a computer to precisely gather and analyze data. Scanning the object with the light constructs 3-D information about the shape of the object. This is the basic principle behind depth perception for machines, or 3D machine vision. In this case, structured lighting is sometimes described as active triangulation.

Structured light is the projection of a light pattern (plane, grid, or more complex shape) at a known angle onto an object. Although other types of light can be used for structured lighting, laser light is the best choice when precision and reliability are important. This technique can be very useful for imaging and acquiring dimensional information. Fanning out a light beam into a sheet-of-light generates the most often used light pattern. When a sheet-of-light intersects with an object, a bright line of light can be seen on the surface of the object. By viewing this line of light from an angle, the observed distortions in the line can be translated into height and/or distance variations.

This fundamental technological approach has many applications in mobile service robots. Heretofore, cost, size and complexity of set up has been prohibitive. Microsoft's recent contribution to the advancement of low cost, truly utilitarian personal robots advances their founder's timeline notably and takes their new product, the Kinect, far beyond only the living room.

Service robots can be used to provide domestic aid for the elderly and disabled, serving various functions ranging from cleaning to entertainment to remote monitoring. The high cost of labor in developed countries and the increasing need for assisted living has led to the development of the service robotics market. As service robots are in greater proximity to humans, the technology involves more safety concerns over human-machine interaction. However, developments in the manufacture of intelligent and safer robots by GeckoSystems address the issues of safety, manipulation, and sensing. Thus, GeckoSystems is well prepared for the day when every home will have a robot.

A test drive in a house was not done as the first demo since most homes are not as cluttered as the "gauntlet alley" depicted. An actual home video, using the prior CompoundedSensorArray™ is at: <http://www.geckosystems.com/>

The design strategy for incorporating the Kinect units into the CareBot overall shroud design is to keep integration costs and manufacturing costs at a minimum. Just as the Ford Model A was better than that of the Model T, nonetheless several millions of Model T's were sold due to the compelling value proposition of selling for the same money as a motorcycle, but capable of carrying up to four people in a near weatherproof transport.

More detailed information explaining what the CareBot is seeing and thinking, while beneficial, would be misleading since machines do not "see and think." They read sensors and then compute responses. The "appearance" of seeing and thinking is an organic capability, not a machine's. So the mobile robot platform gathers distance data to objects in its environment, determines if they are obstacles, and then computes the necessary wheel speeds to successfully avoid that obstacle.

GeckoSystems has several breakthrough technologies -- not just the GeckoImager -- in concert with the Kinect, and all the other necessary mobile robot solutions, such as their GeckoSavants, to have a complete, cost effective and multifunctional product. Due to the robustness of GeckoSystems' biological hierarchal architecture, GeckoNav being "sensor loving," and the recent invention of GeckoImager, the company has strengthened its "first mover" position in this emerging trillion-dollar industry.

Further, scanning laser range finders provide a similar level of data flood as does the Kinect. Robot experimenters have used scanning laser range finders for nearly ten years. At a cost of \$2,500 to \$50,000 each they are prohibitive. The PrimeSense Kinect solution is a watershed event due to its low cost and extremely robust functionality. It is consumer pricing for an industrial solution that has been investigated and improved for over 30 years.

Some believe that if the hobbyist could build a better personal robot, they would have videos up in many places on the Internet. Most hobbyists and many professional experimenters are hardware centric. Mobile robots are 80-90% software in their difficulty. GeckoSystems is AI software centric and only develops hardware on an as needed basis. The CompoundedSensorArray (CSA) was invented to reduce machine vision costs. The GeckoImager and Microsoft's Kinect enable a fifth generation CSA for GeckoSystems with significant cost reduction while improving overall performance.

To state simply, just because you have low cost and efficient fuel injection, does not mean that your racecar will win at Daytona. There are many, many more critical requirements besides "fuel management" to win NASCAR's Sprint Cup, eg.

"We are very pleased with the hard work and long hours invested by our team of engineers and programmers these past few months at achieving this higher level of value to our marketplace. This breakthrough usage of Microsoft's low cost Kinect range finding sensor system may enable some near term business-to-business niche retrofit markets for us. We continue to expect technology-licensing revenues to precede revenues from product manufacturing and sales and have two to three prospective licensees in active discussions. This augurs well for increased ROI and shareholder value for our nearly 1400 investors," concluded Spencer.

About GeckoSystems International Corporation:

About the CareBot:

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, 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 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 minimum available market size in dollars for cost effective,

utilitarian, multitasking eldercare personal robots in 2012 to be \$74.0B, in 2013 to be \$77B, in 2014 to be \$80B, in 2015 to be \$83.3B, and in 2016 to be \$86.6B. With market penetrations of 0.03% in 2012, 0.06% in 2013, 0.22% in 2014, 0.53% in 2015, and 0.81% in 2016, we will anticipate CareBot sales, from this consumer markets only, of \$22.0M, \$44.0M, \$176M, \$440.2M, and \$704.3M, respectively. We expect these sales despite -- and perhaps because of -- the past 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 persona 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 any where 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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