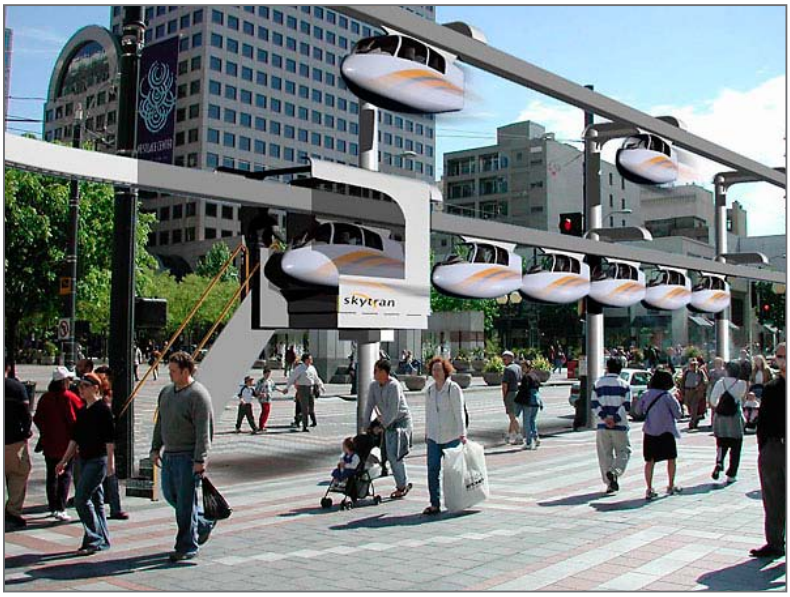
National Aeronautics and Space Administration

# The NRP Post

A publication of NASA Research Park

Winter 2012

## Proposal Featuring SkyTran Wins Judges' Choice at Climate CoLab 2011




Artist rendition of SkyTran in a city

Climate CoLab is a project of the MIT Center for Collective Intelligence. In the Climate CoLab people from all over the world work together to create proposals regarding what to do about climate change. The 2011 contest focused on the green economy, one of two key themes of the United Nations Rio+20 Conference in 2012. Proposals addressed, at global and national levels, how the 21st century economy should evolve, bearing in mind the risks of climate change.

Popular Choice and Judges' Choice awards were made in global and national categories. Personal Rapid Transit grids, by Christopher Fry, a research scientist at the MIT Media Lab, won Judges' Choice in the National category. Fry cites SkyTran as the most energy efficient and economical of the numerous PRT systems that have been proposed. More than 1,750 votes were cast between November 4 -15, 2011.

The winning proposals will be featured in briefings at the United Nations and U.S. Congress in late January. The Climate CoLab will sponsor one representative from each winning team to present at briefings on Capitol

*SkyTran cont'd on page 3*

## NRP's New Partner Scanadu

### Check Your Body As Often As Your Email

by Robin Wauters, TechCrunch

Meet Scanadu, an innovative health tech startup. I daresay you will be hearing a lot more from Scanadu in the future. It's not the easiest of tasks explaining what the company is building at this point, but let's call it a personal, mobile, auto-diagnostics product – they refer to it as a Medical Tricorder.

Early concept of Scanadu's Medical Tricorder

Founded in January 2011 by a team of entrepreneurs with diverse backgrounds, the roots of Scanadu actually go way back. One of the company's founders, and its chief executive officer, is Walter De Brouwer – something of a legend here in Belgian entrepreneurial circles, and beyond.

He says he had the basic idea for a personal health monitoring service back in 1999 when he was working at the renowned Starlab Research Institute, which he jump-started alongside MIT Media Lab founder Nicholas Negroponte. He was also influenced by watching Star Trek.

"Sci-fi stories are business plans in disguise," De Brouwer tells me, referring to the invention of the mobile phone, which was inspired by the Star Trek communicator. "I've tried to build the Tricorder once before, in 1999 at Starlab, but the technology

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## CONTENTS



# NRP Welcomes

## AAC Microtec

**Bldg. 19, Room 2024**
**Commencement 11/15/11**

AAC Microtec's mission at NRP is to support the integration and commercialization of small satellites. In addition, they have several technical evaluation activities with key partners that require a local presence and will have highly skilled experts on site.

## Scanadu

**Bldg. 20, Rooms 201-224**
**Commencement 12/1/11**

Scanadu, Inc. is on a mission to build what they call a mythical device: "The Medical Tricorder." Says company COO Misha David Chellam, "NASA has been a leader in developing remote health monitoring technology for decades and we hope to benefit from some of that expertise by being here."

## Verdigris Technologies

**Bldg. 19 rooms 2073, 2076 & 2077**
**Commencement 1/1/12**

Verdigris Technology is a startup company focused on solving global CO2 emissions and climate change. Their mission is to enable an ecosystem of wirelessly connected monitoring and control systems allowing businesses and homeowners to integrate new technologies, such as plug-in electric vehicles, solar arrays, wind generators and localized fuel cell storage.

## GOLL, LLC.

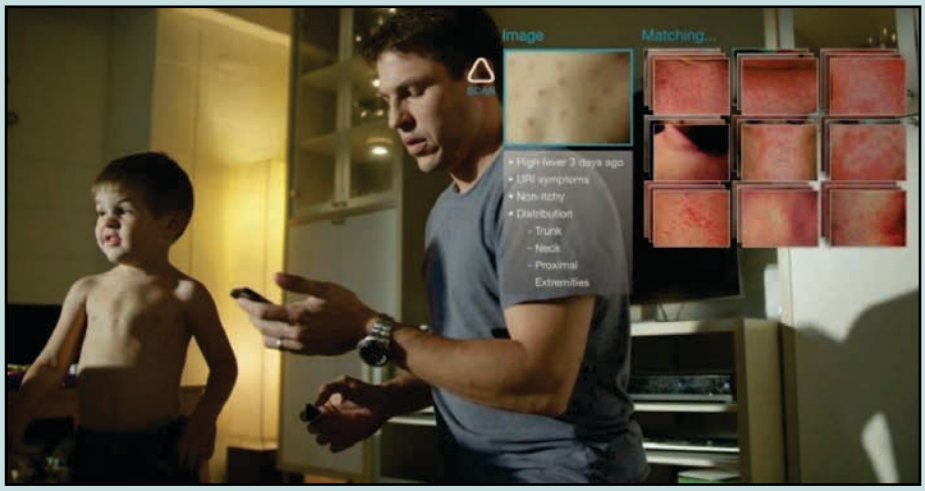
**Bldg. 19, Rm. 2088**
**Commencement 12/1/11**

GOLL, LLC provides expert consulting and engineering solutions in the areas of spacecraft integration & testing, industrial automation of factory processes for the space industry, spacecraft command, control & communications, autonomous operations, flight software and onboard autonomy. GOLL, LLC engineering staff are supporting NASA Ames' LADDEE and IRIS projects.

*Scanadu cont'd from page 1*

was too immature."

De Brouwer says the idea resurfaced in his mind in 2006, when his son was hospitalized for 3 months following a serious accident. So he conjured up the idea of using one's smartphone as a personal doctor of sorts, leveraging many of the things modern cellphones can do to help people auto-diagnose and manage many of the easily identifiable health conditions that may arise.



Scanadu's Medical Tricorder will work as a pocket-sized diagnostic tool

Scanadu's first product, "The Medical Tricorder," is built specifically for parents with kids in mind, and to help avoid expensive trips to hospitals based on insufficient information and/or anxiety.

"Today, the health tools in your home probably consist of a thermometer and a box of band-aids. We can do a lot better," says co-founder and COO Misha Chellam.

The company has worked with IDEO to create a video that captures its core vision well that includes the quote I used for this post's headline, albeit paraphrased.

Scanadu has raised $2 million from a network of global angel investors, including Playfish co-founder Sebastien De Halleux, and is currently moving the team from Belgium to the San Francisco Bay Area (the lab is being established at NASA's Research Park).

The company is building a core team of biomedical engineers, software and hardware developers, and AI specialists. They also have a Medical Advisory Board that includes Stanford-affiliated Dr. Daniel Kraft and Dr. Jordan Shlain, founder of Healthloop and Current Health.

Scanadu is currently seeking technology partnerships with telemedicine and diagnostic technology startups, and hiring more people to join its quest to build a personal 'pocket doctor'.

*SkyTran cont'd from page 1*

Hill in Washington and at the United Nations in New York. The winning proposals will also be featured on TreeHugger.com.

### SkyTran Proposal-- by Christopher Fry

Install connected Personal Rapid Transit grids over the urban and suburban areas that house the densest 50% of the US population.

**Executive summary**

A large set of national problems are caused by our car-based transportation system. This system is directly expensive for individuals, second only to housing, is time-consuming especially due to the slow speeds in congestion, and causes air pollution which causes respiratory disease and global warming. Car accidents cause 40K deaths and hundreds of thousands of injuries per year. We can eliminate cars, buses, subways and short-haul airplanes from our urban areas with a grid of 1-mile square cells of mag-lev guideways, 20 feet above a city containing two person 'pods' that are waiting for customers at an average distance of 1/4 mile from every point in the grid. These pods use less energy and money per passenger mile than any practical electric car, bus or rail (light or not) and are safer and faster. At the top speed of 150MPH, they are faster

*SkyTran cont'd on page 9*

## UPCOMING NRP LECTURE 1/31/12
## Disaster Resiliency Panel Discussion

The next NRP Lecture will be a panel discussion on the topic of Disaster Mitigation/Disaster Resiliency. It will take place in the Bldg. 3 Ballroom on Jan 31 from 7-9 pm and will be followed by an audience Q&A. Panelists will include: Bob Dolci, Director of Center Operations (Acting), Dr. Martin Griss, Director of Carnegie Mellon University Silicon Valley, Steve Jordan of the National Disaster Resiliency Center (NDRC), and Tore Andre Nilsen from IntraPoint (an NRP tenant).


Scene from a NASA Ames Disaster Assistance and Rescue Team (DART) structural collapse drill

## FutureMed will Explore Impact of Exponential Technologies on Health and Medicine
### Feb. 6-11, 2012 at NASA Research Park

MOUNTAIN VIEW, Calif.—Singularity University's FutureMed is Silicon Valley's premier specialized executive program for physicians, healthcare executives, innovators and investors interested in exploring the impact and opportunities of rapidly developing technologies in the fields of health and biomedicine.

The informative and interactive 5-day program will be held February 6-11 on the SU campus at NASA Research Park, Mountain View, CA, and will include lectures, discussions, workshops and site visits, led by notable SU faculty and experts in the fields of medicine, biotechnology and innovation.

"Few fields have the potential to evolve more dramatically through disruptive, rapidly advancing technologies than healthcare," said FutureMed Executive Director Daniel Kraft MD, a Stanford and Harvard University trained physician/scientist and Chair of the SU Medicine Track. "For example, the integration of 3D printing with regenerative medicine and stem cells is emerging as cells replace ink in our printers and the possibility to develop personalized tissues and organs emerges. This is just one example of how our lives and medicine may be impacted by convergent, fast moving technologies."

FutureMed is a unique program that looks at potential applications of low cost genomic sequencing and proteomics; ever faster, high resolution imaging; and artificial intelligence, telemedicine, robotics, 24/7 wearable body sensors, stem cells, synthetic biology, gene therapy, and crowd sourced health data. FutureMed examines how these technologies are radically changing, and how we think about wellness, prevention and the delivery of medical care.

**About FutureMed**
FutureMed has been described by past attendees as "a mind-opening voyage into the future with the people who are creating it; absolutely incredible; and intellectually invigorating with practical business benefits."

FutureMed, an executive program at Singularity University, prepares physicians, health care executives, entrepreneurs, innovators and investors to recognize and leverage disruptive influences of exponentially growing technologies in the fields of medicine and healthcare. Core tracks include Information and Data-Driven Health, Internet-Enabled Healthcare, Genomics and Personalized Medicine, Regenerative Medicine, Robotics and Future Interventional Approaches, NeuroMedicine, Device and Drug Development, and Biomedical Entrepreneurship.

To apply for FutureMed 2012, visit: FutureMed2020.com
Follow FutureMed on Twitter @FutureMedTech and on Facebook.com/FutureMed

Daniel Kraft, Stanford Medical School Faculty Member, Singularity University Medicine Track Chair, and FutureMed Executive Director.

Faculty and Speakers for the February 6-11 FutureMed Program include:

- Peter Diamandis MD, Chairman, X PRIZE Foundation, SU Co-Founder
- Ray Kurzweil, futurist, inventor; author of "The Singularity Is Near," SU Co-Founder
- Dan Barry MD PhD, roboticist, NASA physician and three-time Space Shuttle Astronaut
- Catherine Mohr MD, Director of Medical Research, Intuitive Surgical
- Stephen Quake PhD, Professor and Co-Chair, Dept. of BioEngineering, Stanford University
- Alex Jadad MD, Chief Innovator and Founder, Centre for Global eHealth Innovation
- John Mattison MD, Chief Medical Information Officer, Kaiser Permanente
- David Sayen, CMS Regional Administrator, Centers for Medicare and Medicaid Services
- Alan Greene MD, Pediatrician thought leader, Founder of DrGreene.com
- Dale Bredesen MD, Professor and Founding President, Buck Institute for Age Research
- Kevin Stone MD, Orthopedic Surgeon and Chairman, Stone Research Foundation
- Neil Jacobstein, SU Co-Chair for Artificial Intelligence and Robotics
- David Ewing Duncan, Author of 'Experimental Man,' and 'Personalized Medicine Manifesto'
- Richard Satava MD, pioneer in surgical robotics and telemedicine, Professor, Dept of Surgery, University of Washington


Mejghan Haider, Chief of Business Development and Deputy Director (Acting) of NASA Research Park was a recipient of the Northern California Real Estate Women of Influence Award on October 7, 2011. The award recognizes Mejghan's 13 years of contributions to successful development and leasing activities at the NASA Research Park.

## Silicon Valley Tech Executive to Lead International Growth of SU Programs

Mountain View, CA

Singularity University (SU) has announced the appointment of Rob Nail, a successful Silicon Valley entrepreneur and an associate founder of SU, as Chief Executive Officer. Most recently Rob has been serving as SU's Director of the Graduate Studies Program. He succeeds Neil Jacobstein, who will continue to co-chair SU's Artificial Intelligence and Robotics education track and take on the role of Director of Executive Academics.

"We are thrilled to have Rob as CEO of Singularity University. He embodies the intellectual talent and entrepreneurial spirit that uniquely mirrors our faculty, staff, students and alumni," said Dr. Peter H. Diamandis co-founder and executive chairman of Singularity University.

"At the same time, we thank and applaud Neil Jacobstein for his leadership during the last year, and are pleased that he will continue to benefit SU through his faculty expertise," said Ray Kurzweil, co-founder and chancellor.

Neil Jacobstein said: "It has been an honor for me to serve SU in the President's role for the past year, and I look forward to getting back to academics. Rob Nail and I have worked well together on SU's Graduate Studies Program, and I think that he will do a great job as CEO of the University."

"I am excited to lead a University that is spinning out transformational companies that are using exponential technologies to solve the world's grand challenges," said Nail. "Additionally, SU alumni from our executive program include top executives from some of the world's most impressive companies and a major priority will be to support and continue to build that amazing network."

Rob Nail, CEO of Singularity University

Rob Nail is the co-founder and former CEO of Velocity 11, a biotechnology firm that was later acquired by Agilent Technologies in 2007. He has also served as a surfer at The Big Blue, and was the Co-Founder of Alite Designs, where he continues to serve on the Board of Directors. Nail earned a BS in Mechanical and Materials Sciences from University California, Davis, and a MS in Engineering from Stanford University.

Singularity University offers both graduate and executive programs focused uniquely on the impact and incubation of exponentially growing technologies in six key areas: medicine and neuroscience, networks and computing systems, artificial intelligence and robotics, biotechnology/bioinformatics, nanotechnology, and energy and environmental systems. Nail will lead a dedicated staff and world-class core faculty of technical and scientific experts in the management of SU. He also will be responsible for growing the organization by expanding the base of industry partners, sponsors and supporters.

For more info, please visit www.singularityu.org/ep

## Eureka is Back at Moffett

By Rachel Love

The Farmers Airship arrived back at Moffett Field on October 22, 2011 after a six-month history making cross country tour.

During the *Farmers Airship Covering Communities Tour*, the Zeppelin barnstormed across the Southern, Mid-Atlantic and Midwestern United States, traveling more than 11,000 miles, flying in the skies of half of the nation's states and hosting more than 2500 passengers. Not only was the Farmers Airship the first-ever Zeppelin to undertake such a journey, she achieved other historic firsts including being the first Zeppelin Airship above Manhattan in more than 70 years and becoming the first Zeppelin to visit Lakehurst Naval Air Station since the Hindenburg.

"While I'm proud of the history we made and the records we set, I think the most memorable part of the tour was seeing the joyful effect the airship had on the public," said Airship Ventures CEO Brian Hall. "Tens of millions of Americans saw us flying as an ambassador for Farmers Insurance and the overwhelming welcome we received in each city proved how much pride and enthusiasm the airship generated. There's not a more exciting place for us to share that joy than here in the Bay Area and we can't wait to welcome the public to share in the Zeppelin experience."

**Some statistics:**

25 States transited
42 Stops at 36 different airports
16,000+ Miles driven by each of our 8 vehicles
462 Hours flown
2,510 Passengers flown

For info about current rates and special discounts call 650-969-8100 or visit http://www.airshipventures.com/


Airship Venture's Eureka flying over the Statue of Liberty


On November 9, 2011, representatives from Ilab in Denmark brought a group from the Bank of Spain, the Danish Ministry, MIT and TEDsters to NASA Research Park. Michael Marlaire, Director of NRP, provided an overview and discussed NRP collaborations.

## NASA Collaborates to Create Disaster Management Technologies

by Karen Jenvey
NASA Ames Research Center
Public Affairs Office

MOFFETT FIELD, Calif. – A delegation of Norwegian entrepreneurs and government officials received a demonstration of disaster management technologies on Oct. 28 at NASA Research Park as part of Transatlantic Science Week.

NASA Ames is collaborating with the Carnegie Mellon University Silicon Valley (CMUSV) and IntraPoint, a new partner in the NASA Research Park, to develop disaster management technology.

"It is very exciting to collaborate with NASA Ames Research Center and Carnegie Mellon University Silicon Valley as we expand our technical solutions that will improve our customers' capabilities to handle unexpected incidents. Being present on the NRP campus is extremely valuable since our research includes cutting edge technology," said Yngvar Duesund, Chairman of the Board of IntraPoint.

"Since the 1991 Oakland Fire Storm, Ames has aggressively pursued opportunities to leverage NASA technologies, as well as technologies of other federal agencies and non-government organizations, to provide new and better tools for emergency responders. We look forward to collaborating with Carnegie Mellon Silicon Valley and IntraPoint to advance the field of emergency response," said Bob Dolci, Chief of Protective Services at NASA Ames.

NASA Ames houses the Disaster Assistance and Rescue Team (DART), a federal emergency response and recovery team. Carnegie Mellon University's Disaster Management Initiative (DMI) partners with NASA and DART and with Intrapoint, an affiliate of DMI. The DMI's mission is to provide next generation technical solutions for disasters.

Yngvar Duesund, IntraPoint

"This is an exciting next step in the effort to improve disaster response. Our research and recent workshop highlights the key challenge of improving communications and data interoperability for better disaster response," said Dr. Martin Griss, director of Carnegie Mellon Silicon Valley and the Disaster Management Initiative. "As an academic institution, we've been able to bring together researchers, practitioners and policy makers to combine expertise and resources in the interest of humanitarian assistance. That this event is transatlantic, will further advance these goals," Griss added.

Transatlantic Science Week was held at University of California, Berkeley and Stanford University, Palo Alto, Calif. The conference goal was to increase transatlantic cooperation in research, innovation and higher education. Besides a visit to NASA Ames, Transatlantic Science Week included visits to U.C. Berkeley, Stanford, Lawrence Berkeley Space Observatory, IBM and Google. Scheduled speakers included representatives from NASA Ames and Carnegie Mellon Silicon Valley.

For info about Transatlantic Science Week, visit:
http://goo.gl/ezZYj

For info about Carnegie Mellon University Silicon Valley, visit:
http://www.cmu.edu/silicon-valley/

For info about NASA Ames Disaster and Assistance Rescue Team, visit:
http://dart.arc.nasa.gov

For info about NASA Research Park, visit:
http://researchpark.arc.nasa.gov

## NASA "WRAP" Operations in Next-Gen Emergency Operation Center

by Linda Kloth, Freelance Editor

NASA and Carnegie Mellon University's Silicon Valley (CMUSV) Campus joined resources to conduct exercises for a NASA WRAP (Wildfire Research and Applications Partnership) mission in the CMUSV Next-Generation EOC (Emergency Operations Center). The mission is designed to collect and distribute real-time, geo-registered, multi-spectral wildfire image data using unmanned aerial vehicles (UAVs).


Multispectral wildfire image from unmanned aerial vehicle showing fires in New Mexico and San Diego County, California

The exercises evaluated sensors, software and communications systems for real-time mapping and observation of wildland fires from UAVs. The robot aircraft fly over a fire in progress, capture high-detailed imagery (visual and infrared), "drape" the imagery over maps—with complex computation involved to compensate for the altitude, tilt and roll of the UAV—and feed the information to fire commanders on the ground, sometimes many miles away. In this case the fires were in New Mexico and San Diego County, while mission control was on the CMUSV campus in Northern California.

"Although this work has focused on wildfires, this same technology would be equally, maybe even more, valuable after an earthquake, oil spill or other disaster that covers a large area. We've had the ability to get aerial imagery for a long time, but we've never had a capacity like this for putting together a precise yet wide-area operating picture in real time," said Art Botterell, disaster management expert and CMUSV Next-Gen EOC consultant.

CMUSV contributed the use of its new Next-Generation Emergency Operations Center as a highly-connected, technically-

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## CMUSV Designated CUDA Research Center

by Linda Kloth, Freelance Editor

Carnegie Mellon University's Silicon Valley (CMUSV) campus received the designation of CUDA Research Center from NVIDIA for research in applying GPUs to challenging research problems in Machine Learning. CMUSV was selected based on the vision, quality, and impact of its research-leveraging CUDA technology.

The CMU Silicon Valley campus CUDA Research Center will focus on application-driven research in computer science and engineering. Its goal is to advance the state-of-the-art in machine learning for human-centric computing, focusing on core technologies such as speech recognition, natural language processing and computer vision, and developing novel applications that will have impact in the real-world such as real-time speech translation, intelligent interactive systems and multimedia search.

The principal investigators of this research center, professors Ian Lane and Jike Chong, have published more than 60 papers, book chapters, and patents in the above research areas, and have supported their research with funded grants from NSF, DARPA and industry.

"The CUDA Research Center designation creates a synergistic environment that will attract additional interest to investigate and demonstrate the effectiveness of CUDA for real-world applications," said Chong. He added, "With the consistent presence of the HPC and GPU Supercomputing Group monthly meetings on campus, CMUSV is quickly developing prestige and identity in parallel computing research in Silicon Valley."

"This is great news," said Professor Lane about the CRC designation, "Carnegie Mellon Silicon Valley is now one of only three institutes in the US that have been designated as both CUDA Teaching and Research centers. Over the past six months we have received six designations and grants in the area of high-throughput computing to support our research efforts."

Visit NVIDIA site for new CUDA research centers announcements.

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sophisticated workspace for mission control and collaborative decision making. The reliance on solar power in a mobile platform provided a realistic simulation of field conditions, while being near CMUSV and NASA Ames resources.

This first exercise was a trial run for extensive work scheduled in September and October. During that period NASA and CMUSV teams were on-call to fly over developing wildfires. Additional information is available at the NASA WRAP website at http://geo.arc.nasa.gov/sge/WRAP/current/future_missions.html.

(L-R) Steve Ray, associate director of CMUSV's Disaster Management Initiative and Art Botterell, DMI Consultant, at CMU's next-generation EOC, which uses solar power and novel computing.

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city-center to city-center than current air travel for cities several hundred miles apart. They beat high speed rail not because their top speed is faster, but because you don't have to wait for them or travel so much to stations. At a fare of 10 cents per passenger mile, (compared to more than 50 cents for cars and even more for existing mass transit) the system can pay for its capital and operating expenses off of rider fares with NO goverment subsidy, unlike all mass transit in the US today.

Christopher Fry, Research Scientist, MIT Media Lab: "I've followed the development of PRT systems since 2007 and identified the best technical and economic features of all proposed systems. I've developed spreadsheet

*SkyTran cont'd on page 10*

## Magnetic Gliding Pods could be Transit of the Future

by Jonathan Bloom

MOUNTAIN VIEW, Calif. (KGO) -- Forget planes, trains and automobiles, a totally new kind of transportation is in the works at a NASA lab in the South Bay. Gliding pods could someday pick you up where you live and drop you off at work.

In a nondescript building at the NASA Ames Research Center in Mountain View, a little bullet shaped vehicle, creeps down a 50-foot metal test track.

"You're whisked away at a high speed with silence -- because SkyTran is a passive magnetic levitation vehicle, meaning there's no clitter-clatter of wheels, you're riding on a cushion of air," SkyTran CEO Jerry Sanders said.

Gliding at up to 150 miles an hour, suspended from poles, SkyTran is the first in a category called personal rapid transit. The computer-controlled pods pull off the track and into a station where riders hop in, swipe a card and select a stop -- just like pressing a button on an elevator.

It combines the flexibility of a car with the experience of riding a train.

"People don't like driving now because you're stuck in the car, you can't text without risking a ticket or an accident, so with SkyTran you'll be able to work on your computer or your laptop while you're traveling," SkyTran Vice President of Engineering Robert Baertsch said.

SkyTran's designers say the technology behind the system is innovative, but not revolutionary. What is revolutionary, they say, is how much the system will cost cities, or rather, how much it won't cost them.

"Anyone can build a train system that costs $500 million; very few people can build a train system that costs $5 million," Sanders said.

SkyTran 's CEO claims his system would pay for itself, charging fares of around 30 cents a mile.

"It can be built cheaply, safely, effectively and efficiently and the beauty of SkyTran is that it's built in a factory like Lego," Sanders said.

One proposed site for that factory is in Fresno, where SkyTran claims it would create hundreds of jobs. But the city of Mountain View also wants a factory and hopes it will help them score the first SkyTran system.

"It would allow this area to continue to grow for many years before it becomes completely saturated," Mountain View Mayor Jac Siegel said.

## The Futurist: N. Rao Machiraju

Edited by Mark Storer

What does a former principal scientist at Apple, a man who serves on the advisory board to the World Centre for New Thinking in Malta, do when thinking globally? If you're N. Rao Machiraju, the co-founder and CEO of reQall Inc., you act locally.

A Ventura resident for 24 years, Rao sits on the advisory board of Ventura Incubator, which the city established as a way to lure high-tech firms to the beach community. Ventura is also partnering with venture capitalists to seek out tech companies that hold promise, something Rao knows a thing or two about.

Photo by Gary and Pierre Silva

N. Rao Machiraju, Co-founder and CEO of reQall, Inc.

He is responsible for the overall strategy and direction of a company that developed a tool rooted in MIT research on memory improvement—a voice-enabled memory aid designed to make forgetting a distant memory. And he has accomplished much of this while keeping a home and raising a family in Ventura over the past two decades.

"The incubator has come a long way," said Rao. "Now there are 18 companies. It has become the place for engaging in technology start-up conversations." But he gives a nod to the city council for bringing the incubator about. "When I learned of Rao's background, I thought he needed to be involved on the advisory side," says Alex Schneider, an associate planner with the city's economic development division. "From his resume to his ideas to his ties to venture capitalists and entrepreneurs—it was all really impressive. Now he's becoming instrumental in bringing in people from outside and creating a wider network."

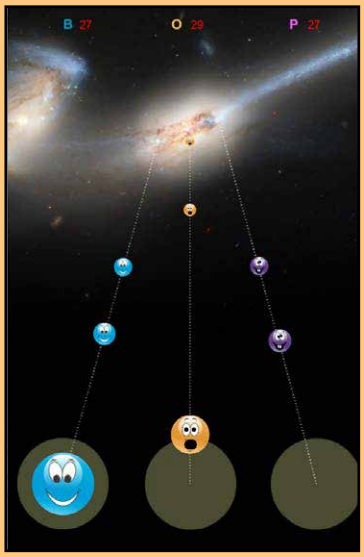
To be certain, the idea of Silicon Valley in Ventura was, and still is, a visionary prospect. But it's just this sort of leading edge spirit that drives the man. His reQall company has released reQall Rover, a device Rao says will make your cell phone into a truly multi-platform tool. "The idea of the phone always working for you based on your context is a powerful idea," Rao said. "We are very excited about this. These days I wake up to a reQall Rover summary in the morning, and Rover helps, from surfacing the actions that I need to attend to in my email to all other important things that I would want to know: weather, personalized news, deals, places to eat, Facebook posts, Twitter trends. It all appears on Rover's 'Here and Now' screen."

The Rover is more than just the latest gadget, too. Rao believes nanotechnology will pave the way for the next generations of digital devices, and while shades of The Terminator are ever-present when he talks about "personal technology," Rao's vision of the future isn't clouded by the nightmares of '80s-era filmmakers.

"In the decades ahead, I think self-organizing pervasive systems will be commonplace," he said. "Our current dependence on things like 'smart' cell phones will be completely dwarfed by devices that learn and do a multitude of tasks for us."

Learn more about reQall online at reqall.com.

Photozig, an NRP partner, is developing a mobile App called "PepBlast Galaxy", an educational gaming application, featuring videos created by NASA about galaxies and space exploration, a music game, and cool songs. The first title version is expected to be released to the App Store in Winter 2012.


Screenshots from Photozig's new educational mobile app "PepBlast Galaxy"

*SkyTran cont'd from page 9*

models for Boston and Detroit of costs involved for PRT'ing those cities."

"The most energy efficient and economical of the numerous PRT systems that have been proposed is called SkyTran. The SkyTran guideway has a cross section of about a square foot. The pods hang beneath the guideway yet are magnetically levitated by the guideway such that during normal operation, the pod does not touch the guideway. Linear electric motors comprised of the bogie that is attatched to the top of a pod and the guidway itself propel the pod. The pod contains two seats, one behind the other. The guideway is suspended by utility-like poles 20 feet above the ground. Pole spacing is 30 feet, with each pole having a footprint of about a square foot," said Fry.

## Bloom Energy Attracts Data Center Operators in California

By Katie Fehrenbacher
July 28, 2011


NTT's installation

Silicon Valley[1]'s fuel cell maker Bloom Energy continues to add customers looking to power part of their data center operations with distributed, cleaner power in California. On Thursday, the U.S. division of Japanese telecom giant NTT, NTT America, said it will install five Bloom fuel cells at one of its data center facilities in San Jose, Calif.

Nine-year-old Bloom Energy sells an industrial-sized fuel cell (which looks like a large refrigerator) that uses a chemical reaction to produce electricity. The Bloom Boxes suck up oxygen on one side and fuel (usually natural gas or biogas) on the other side, and produce power on-site for companies in a more efficient and less carbon-intensive manner than using the grid (depending on what fuel the company uses).

NTT America says it will use biogas (gas generated by decomposing organic material) produced at a California dairy farm as fuel for the Bloom fuel cells. That means NTT's fuel cells won't emit as much carbon as many of the Bloom fuel cells that are being powered by natural gas. Updated: NTT America has corrected the source of the biogas to two landfills in Pennsylvania.

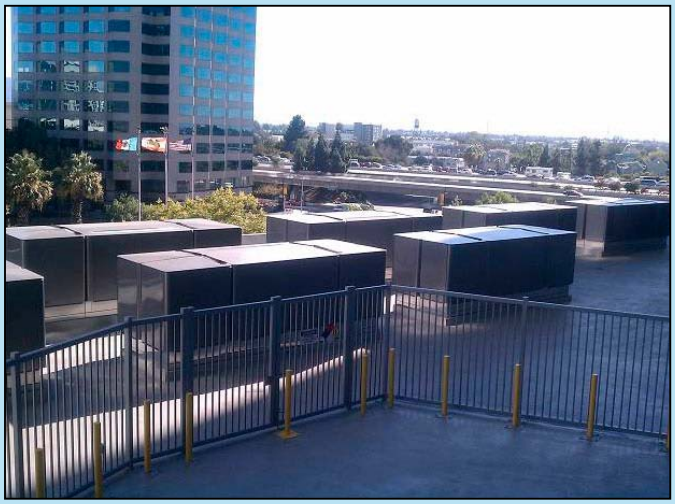
Five Bloom fuel cells have a capacity of 500 kilowatts, which is the equivalent power for about 500 houses or five large office buildings. Each Bloom fuel cell costs around $700,000 to $800,000 before subsidies, so NTT is spending a couple million dollars on the installation.

Data center operators are looking for ways to make their facilities more energy-efficient and greener as a way to cut growing energy bills and also to highlight company sustainability. While fuel cells are still not commonly used to power data centers, Bloom has been slowly growing its customer list of telcos and Internet companies that want to use the Bloom boxes for part of their data center operations.

Earlier this month, AT&T said it plans to install a whopping 7.5 MW worth of Bloom fuel cells (that's 75 fuel cells) at 11 AT&T offices in California. AT&T said it would use the fuel cell power for data centers as well as administration offices and facilities that house network equipment.

Fuel cells likely won't be used as a main, or stand alone, power source for a data center. As we pointed out on GigaOM Pro (subscription required) last year, data centers need a power source that is so-called "five nines" (99.999 percent). Google has said the Bloom Box it was using on its campus had an availability rating of 98 percent, which translates into around seven days of downtime a year: no good for a stand alone power source for a data center running web sites that can't go down.

Bloom has also found success with data center operators in California because state subsidies make the Bloom boxes a lot more economical in California. Customers in the state include Google, eBay and Adobe .



Installation at Adobe

## KleenSpeed Kar is Coming

### Prototype under Development

by Dean Seven
Director of Public Relations, KleenSpeed

KleenSpeed will become a leader in the global electric car marketplace through advanced engineering and design with the production versions of the KleenSpeed KAR.

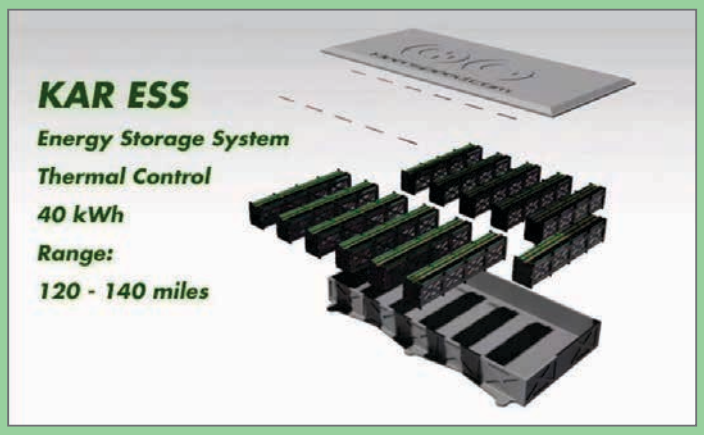
The KAR concept is based on a complete rolling platform designed and engineered by KleenSpeed which will be fitted with a variety of alternative body modules.

The KAR Platform is under development and the first prototype version of the body module is now being modified at KleenSpeed to drop on to the KAR Platform prototype.

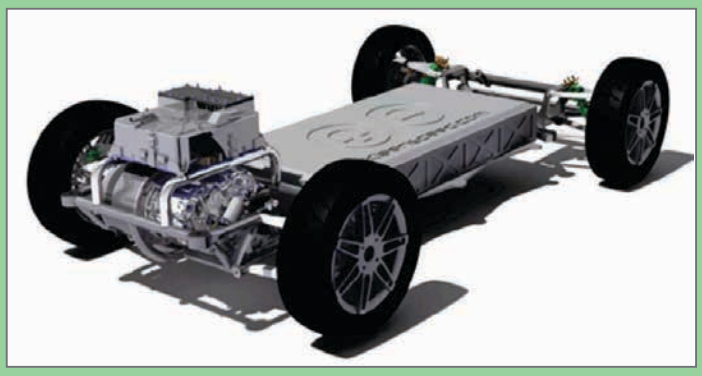
In keeping with the core values of the KleenSpeed brand, our first production EV will emphasize the driving enthusiast's perspective. It will be fast, provide crisp and sporty handling, and be really fun to drive. The KleenSpeed KAR VX-1 will also be a real world viable 2-passenger electric vehicle that sets new benchmarks in value, efficiency, performance and EV technology.

The VX-1 is the first in a series of EVs based on the KAR Platform technologies. A 4-passenger sedan will be developed next, followed by other body configurations .... all offering the KleenSpeed EV experience.


KleenSpeed KAR VX-1 under wraps




The KAR ESS is the heart of the KAR Platform. The scalable ESS will feature thermal control and a self-contained enclosure with modular battery packs to allow for simple size and power variations. The largest version will provide 40 kWh of energy and deliver sports car performance and a real-world range of 120 -140 miles.



The KAR PLATFORM incorporates a unitized controller/motor/drivetrain package mounted via rear subframe. The low profile ESS mounts under the floor of all body styles to provide a low center of gravity for responsive handling. Steering and front suspension are also incorporated into a modular subframe design. All three main sub-assemblies will be joined by a lightweight platform perimeter frame to comprise a complete rolling chassis.


The KAR Platform is intended to accept a variety of body units to create a full line of E vehicles : a 2 passenger coupe, a 4 passenger sedan, a utility vehicle with a compact pick-up bed, a panel van and a mini SUV are all possible options sharing the common platform. This modular design concept considerably reduces costs to market a full range of vehicle types suited to niche markets.

*KleenSpeed cont'd on page 13*


KLEENSPEED MOUNTAIN E-BIKE
* Dual Disc Brakes
* Polymer Front & Rear Fenders
* Sidestand & Water Bottle


KLEENSPEED FOLDING E-BIKE
* Dual Rim Brakes
* Alloy Front & Rear Fenders
* Plush Saddle & Rear Cargo Rack
* Sidestand & Lighting Kit

*KAR cont'd from page 12*

**PRELIMINARY SPECIFICATIONS**
**KLEENSPEED KAR E-MAX System**
**ESS : KLEENSPEED Energy Storage System & Control Interface**
**KLEENSPEED Modular Battery Pack 40 kWh**
**BMS : KLEENSPEED Battery Management System**
**EPS ; KLEENSPEED Power & Drivetrain / UQM Motor Controller**
**Motor ; UQM 100 kW : 134 HP / 300Nm : 221 lb ft torque**
**EVI : KLEENSPEED Electric Vehicle Integration Systems**

**KLEENSPEED KAR PLATFORM**
**MODULAR DESIGN**
**REAR SUBFRAME - Motor/Controller/Drivetrain**
**ENERGY STORAGE SYSTEM**
**FRONT SUBFRAME - Steering & Suspension**
**Weight :**
**1,350 / 1,450 lbs Rolling Platform**
**2,500 / 2,600 lbs Complete KAR**
**Wheelbase : 88"**
**Track : 56"**
**Turning Circle : 26'**

## The E-BIKE is Leading the EV REVOLUTION

by Dean Seven
Director of Public Relations, KleenSpeed

**E-Bike Usage Around The World**

Everywhere in the world, outside of the United States, the primary form of transportation is the bicycle or the "Putt Putt" gas engine Motor Bike.

• In Asia the pollution from the putt putts became so great that they have been banned or severely restricted. These bikes have been replaced by Electric Assist Bikes and Electric Scooters originally powered with lead acid batteries, but now powered by Lithium Ion technology. In 2010 Asia consumed about 28 million E-Bikes.

• In Tokyo practically every mother has an E-Bike with a child seat.

• In Europe 1 million were purchased and, in Switzerland alone, there are 400 rental facilities offering E-Bikes for conquering the hills and Alps.

NOW KLEENSPEED is offering our own E-BIKEs In America. After extensive research of the market and available manuafacturers, KLEENSPEED has developed a partnership with one of the leading global E-BIke manufacturers (over 100K units sold in 2010) to develop our own line of sensational, affordable KS E-BIKES.

We believe that Electric BIkes are both good for raising the EV consciousness and also useful, fun alternative vehicles.

Our bikes are solid machines, with quality components, advanced EV systems and priced to meet the popular market.

We are now developing a dealer network and, for a limited time, offering individual sales to all EV enthusiasts.

**KLEENSPEED Electric Bikes**
*** 2 Models : KS Mountain E-Bike & KS Folding E-Bike**
*** Dual Mode EV System : AUTO Pedal Assist / MANUAL Throttle Control**
*** Motor : 36V 250 W Brushless**
*** Lithium Ion Battery : 36V 10Ahr**
*** 86.4W Charger - Removable Battery Charges in 4-6 Hrs**
*** Shimano 6-Speed Gearing**
*** Alloy Frames**
*** Well Detailed with Many Standard Accessories**
*** 1 YEAR Warranty on all parts & components**

## Intrinsyx has Exciting and Rewarding Year

by Mike Schultz

Intrinsyx a minority woman owned NCMSC and SBA 8(a) certified company has been nominated for the George M. Low Award by NASA Ames Research Center in Mountain View, CA. The George M. Low Award is NASA's premier quality and performance award for NASA's prime and sub contractors. This award program recognizes large and small businesses that demonstrate excellence and outstanding technical and managerial achievements in quality and performance on NASA-related contracts or subcontracts. Each NASA Center has a local competition and then the NASA centers submit to NASA Headquarters the center nominees for the agency wide competition. It is quite an honor to be nominated by a NASA Center for this award. Intrinsyx worked hard for this recognition over the last year working on the Security Operations Center (SOC), NASA/FAA project NextGen ATM, the Outsourced Desktop Initiative at NASA (ODIN), and Stratospheric Observatory for Infrared Astronomy (SOFIA). Intrinsyx has earned a reputation for working hard and getting our projects done on time every time. The company management has worked tirelessly to develop the skills and people who work on our projects. Intrinsyx wants to ensure we are providing NASA with the right talent at the right time. We maintain our path to Excellence through the Quality of our people and services.

Intrinsyx management team (L-R) Ahsan Ali, Dan Lebach, Arshad Mian, Seham Khan, Rob Robason, Mike Schultz.

NASA approves Intrinsyx as a Protégé to Lockheed Martin. Lockheed Martin has taken Intrinsyx on as a protégé in the NASA Mentor Protégé program. The NASA Mentor-Protégé Program is designed to encourage NASA prime contractors to assist eligible Protégés in enhancing their capabilities to perform NASA contracts and subcontracts, foster the establishment of long-term business relationships between these entities and NASA prime contractors, and increase the overall number of these entities that receive NASA contract and subcontract awards. Intrinsyx has worked with Lockheed for many years and Intrinsyx is very pleased and ready to get to work as a protégé to Lockheed Martin on several NASA Projects. Intrinsyx holds in high regard, the great opportunity we have been given by NASA, and Lockheed Martin.

Thank You NASA, Lockheed, and all of our excellent employees for making 2011 a great year.

## Intrinsyx Open House Highlights Advanced Video Collaboration

by Mike Schultz

Intrinsyx Technologies Corporation, located in Suite 2028, Bldg. 19, invited the local community to see the latest generation of ultra HD real-time video and graphics sharing systems that deliver data over IP networks. The Ames community and general public viewed the Intrinsyx Advanced Video Collaboration (AVC) Showcase on July 28 and August 31, 2011.

The open house included demonstrations of the system's abilities to record multiple video streams and deliver them in real-time, and time-sync to multiple remote locations over IP networks. The system offers playback of multiple live or recorded streams that can be viewed on single or multiple displays, with the ability to bookmark and annotate during live or post action review sessions. The system can deliver up to 4 megapixel (ultra HD) video with exact pixel-for-pixel quality at full monitor rates to remote locations with very low latency (1-2 frames) over standard data networks.

The AVC system's ability to capture, record and distribute multiple video sources in real-time over IP networks and deliver them in time-sync to multiple remote locations enables true real-time sharing and collaboration. These systems have been successfully deployed in flight simulators, virtual warfare centers, mission command and control centers, cardio-surgical theaters and telemedicine stations, and offshore oil and gas exploration stations.

if you have any questions contact Yogesh Khare at (408) 888-3855 or e-mail at yogesh@intrinsyx.com.

## Developers of ACE Manufacturing Park in Loveland, CO visit NASA Research Park in Silicon Valley

By Howard Pankratz
The Denver Post
08/04/2011

The developers of ACE Manufacturing and Innovation Park in Loveland said they visited the NASA Research Park in Silicon Valley in early August in an effort to gain insight into how the Colorado park should be developed.

The Colorado Association for Manufacturing and Technology said the trip also helped them identify opportunities for potential collaboration.

"This visit achieves a key milestone in the NASA-CAMT partnership by applying best practices from the proven successes of our NASA Research Park in Silicon Valley toward the goal of accelerating the creation of new jobs in Colorado leveraging aerospace and clean energy technology," said Doug Comstock, director of NASA's Innovative Partnership Office.

Elaine Thorndike, CEO of CAMT, said the visit has led to the identification of potential new partners who are working on "revolutionary and disruptive technologies and prospective tenants" for the Colorado Aerospace and Clean Energy Park.

The planned park, comprised of 167 acres and 881,000 square feet of existing office and industrial space, is located on the former Agilent Technologies campus in Loveland.

The park will be a public-private partnership led by CAMT and is conducting early marketing and due diligence activities.

## Students and Professors Meet NRP Innovators

A group of 65 college students and professors from Mexico visited NRP to learn about exciting innovation projects promoted by different organizations in the park. The students are enrolled at the Leon campus of Tecnológico de Monterrey, the most entrepreneurial university in Mexico, and majoring in electrical and mechanical engineering, digital art and animation, entrepreneurship and marketing.

Students from Mexico's Tecnológico de Monterrey visit NASA Research Park October 11, 2011, hosted by NRP Partner LatIPNet

The visit was part of a week-long immersion program in Silicon Valley organized by SV Links, a non-profit organization working to connect the entrepreneurial communities of Latin America and Silicon Valley. The group experienced first-hand the entrepreneurial culture of the region and interacted with passionate innovators in leading-edge organizations.

At NRP they met with Robert Baertsch, VP of Engineering at SkyTran, to learn about this revolutionary transportation system and with Simon Goldbard, Co-founder of LatIPnet, to learn how this global non-profit organization creates value for Latin countries. Simon talked about various projects that leverage the talent, knowledge, and technologies from Latin countries through partnerships with organizations in Silicon Valley and throughout the world to create new technology companies.

They met with Salim Ismail, Global Ambassador for Singularity University, to understand how the growth of exponential and disruptive technologies can be used to solve humanity's most pressing problems, and learned about the history and future plans for NRP from Michael Marlaire and Mejghan Haider.

With the support of NRP, Tecnológico de Monterrey and SV Links, this group of students were inspired to pursue unforseen career opportunities in science, technology and innovation.


Colorado Association for Manufacturing and Technology (CAMT), including CAMT CEO Elaine Thorndike (right), with NASA HQ Diana Hoyt, briefed by KleenSpeed CTO Dante Zeviar (left)

Department of Commerce International Trade Specialists visit NASA Research Park, briefed by KleenSpeed President Tim Collins and CTO Dante Zeviar

## Delegation from Mexico visits NASA Ames to learn about NASA Research Park

A delegation from Mexico visited NASA Ames November 18 to learn how NASA Research Park cultivates partnerships between industry, academia, and non-profit organizations to support NASA's mission. The visit was hosted by Adolfo Nemirovsky and Emilio Martinez de Velasco of LatIPnet. LatIPnet is an NRP Partner working to catalyze knowledge and technological resources in Latin countries through synergies with global actors that will result in economic and social value. During their visit, Mejghan Haider, Chief Business Development at NASA Research Park, briefed them on the history of NRP and current strategies to create a vibrant community of research, education and innovation in the heart of Silicon Valley.

The visit was promoted by the Mexican Ministry of the Economy and the Mexican Association of IT Industries who are conducting a study to identify best practices in the design and operation of technology parks around the world. This study will help define a strategy for the design and operation of new and current technology parks in Mexico, and is part of an effort to raise Mexican competitiveness in the information technologies industry.

The delegation was organized by Marco Mejia, Deputy Director of Software Industry at Ministry of Economy and by Antonio Couttolenc, Managing Director of Tecnoparques de Mexico.

From left to right, Antonio Couttolenc, Managing Director of Tecnoparques de Mexico, Mejghan Haider, Chief Business Development at NASA Research Park, Adolfo Nemirovsky, LatIPnet Co-Founder, and Marco Mejia, Deputy Director of Software Industry at Mexico's Ministry of Economy.

## NRP Post

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