2 MINUTE TIMES

et openings

Dow Jones Ind.
13,236.53, off 3.01

Nasdaq Composite
2,542.24, off 2.65

S&P 500
1,452.92, off 0.72

Russell 2000
779.81, off 8.97

ay's volume
E: 1,720,391,650
X: 601,156,166
aq: 2,114,696,926

leader: Avocent falls losing at $28.01.

any news

hornton reports he ,000 shares of **Avo-** ck for $30.53 per Thornton is on the ny's board of direc-

ille-based **Yulista** receives Aerospace Management Stan- S9100 and Aero- Quality Management rd for Maintenance zations AS9110. Aviation achieved ation in a record 87 days with a per- re of 100 percent. Aviation says it is enth company in . to achieve the cer- ons.

s

nment agencies in ville will observe **s Equality Day** on 3 with a program ing at 11 a.m. at the s' and Civilians' Club lstone Arsenal. The e speaker is Sharon ny, the associate director with the se Intelligence y. For more informa- d to purchase tick- ntact Julia Story at 954 or Sonja Rice at 75.

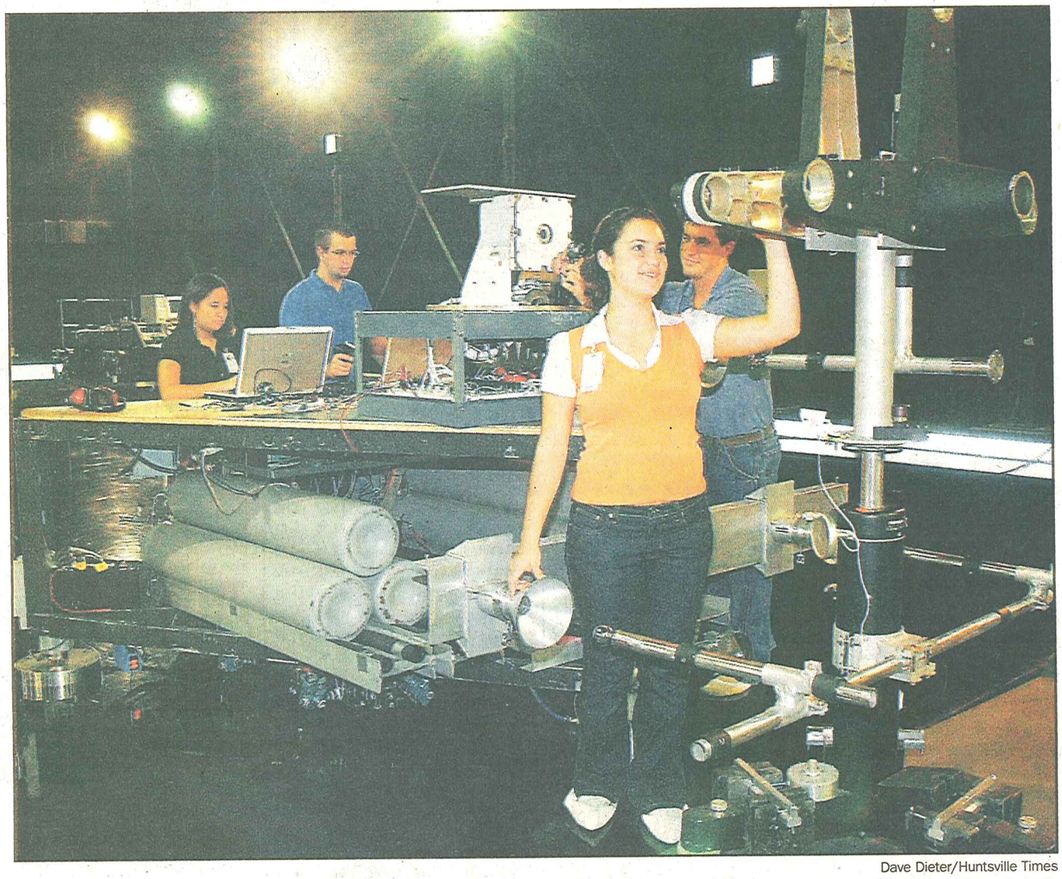
branch opens

Alabama Bank, a lo- wned community will celebrate the opening and ribbon g today at 10 a.m. for vest branch located vidence. This is the office for North Al- a Bank, which is uartered in Hazel .

ll businesses

S. Army Engineering pport Center, sville, is evaluating ility of small busi- s to perform future ts supporting the ry Munitions Re- e (MMRP) and Haz- s, Toxic and Radioac- Vaste (HTRW) Pro- s. The period of per- nce is expected to be ars with a total pro- value of approxi- y $2 billion. Read the ed synopsis at fbo.gov/spg/USA/CO ACA87/W912DY%2D 2DR%2D0050/Syn- P.html

EVERY TUESDAY: FEDERAL FOCUS



Dave Dieter/Huntsville Times

Students program a small air sled, right, to dock with the device on the left. From left are Kyrie Jig of Catholic University of America and Kyle Unfus of Worcester Polytechnic Institute, who are programming the sled. Johnny Minder of Hawaii Pacific University adjusts a camera and Kristie Llera of Florida Institute of Technology prepares the docking device.

Robo-lab

College students modify vehicle, create remote control at Marshall

By DONNA FORK
For the Times
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Four college students had an out-of-this world experience at the Flight Robotics Lab at Marshall Space Flight Center this summer.

Kyle Unfus, Kristie Llera, Jonathan Minder and Kyrie Jig participated in the NASA Robotics Academy from June until August.

The Robotics Academy is new in Huntsville, noted Frank Six of the Academic Affairs Office at Marshall. The program started at Goddard Space Flight Center three years ago.

"The purpose of the program is to give them experience," Six said. The students are all majoring in technical disciplines such as mechanical engineering and physics. They came to Huntsville from colleges in Massachusetts, Washington, D.C., Florida and Missouri.

The students reacted enthusiastically when asked if they enjoyed the experience.

"I want to work for NASA," announced Llera, a physics and space sciences undergraduate at Florida Institute of Technology. The other three students nodded vigorously in agreement.

Unfus, a graduate student at Worcester Polytechnic Institute in Massachusetts, said he especially enjoyed working on the assignment, knowing it was "a real project that has implications."

According to Unfus, the leader of the student team, the group worked on modifying the existing architecture for a Small Air Sled (SAS) and created a wireless control station to operate the vehicle manually.

The vehicle, which is the size of a large cart, operates on a special 84 foot by 44 foot epoxy "flat floor" housed in the Flight Robotics Lab at Marshall. The SAS "floats" on a small cushion of air, using its 18 thrusters to translate and rotate, according to Unfus.

Together, the SAS and the flat-floor facility are like a large version of the popular air hockey game, except, "the puck is the air sled," noted Llera.

The sled has gyros, laser range finders and other equipment to obtain position, acceleration and velocity measurements on the floor relative to its environment. The SAS can determine its position relative to a docking station on the edge of the floor. This information is recorded and analyzed using one on-board laptop computer. A second computer, also on-board, receives the data. Using a second program, the sled automatically docks with the docking station in real-time, Unfus said.

The group had to take the existing hardware and software associated with the SAS, adapt it and wirelessly transmit telemetry to a wireless control station (WiCS). The goal of the project was to provide a working control station that will allow for manual to automatic comparison of timing and efficiency for the SAS, according to Unfus.

The student work was supervised by the Automated Rendezvous and Capture group at the Marshall Space Flight Center.

"Automated Rendezvous and Docking was asked if we would be interested in hosting a NASA Academy Robotics team," said Linda Brewster, deputy branch chief/avionics systems test branch. Applications from across the country were evaluated and the students were selected based on experience and interests. The team was then given a list of potential projects. They selected the remote control of the SAS, she said.

The SAS is one of the Flight Robotics Lab key capabilities for developing and testing docking sensors, Brewster said. The ability to control the sled remotely will add a "pilot" type of interface to the vehicle simulator, she said.

In addition to working on their research project, the students went on field trips to the Massachusetts Institute of Technology and Carnegie Mellon University to view robotics research, and also to Johnson Space Center. They also traveled to the Mercedes-Benz plant in Tuscaloosa, where they observed the use of robotics in the automotive industry.

TVA working to revive Unit 1

Sensing line repaired; NRC says no concerns

By BRIAN LAWSON
Times Business Writer
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TVA continued to work Monday to restore the Browns Ferry Unit 1 reactor to service, after the reactor automatically shut down Saturday night.

TVA reported to the Nuclear Regulatory Commission the shutdown happened at 5:51 p.m. Saturday after a sensing line became separated, signaling a trip in the system and forcing the shutdown.

Third shutdown

TVA officials said no one was injured or endangered due to the incident – the third unplanned shutdown since the reactor began operating in May – and the line has been repaired.

The Unit 1 reactor was restarted May 22 by TVA, after being shut down for 22 years for safety reasons.

The restart project took five years at a cost of $1.8 billion. TVA said the restart was a cost-effective way to provide needed power in its service region.

Bush at restart

The restart was hailed by President Bush during a June 21 visit to the plant.

Given the intense heat, TVA has had to use other assets, including purchasing power from independent power producers Monday, to offset the temporary off-line status of Unit 1, said TVA spokesman John Moulton.

Hydro turbine

Moulton said TVA used hydro and combustion turbines to produce power over the weekend, following the Unit 1 trip, but exercised some previously agreed on contract purchases Monday to keep up with demand.

Unit 1 is capable of generating some 1,155 megawatts, enough power to light 650,000 homes, according to TVA.

The NRC said on-site inspectors are monitoring the plant and the resumption of power efforts.

Different areas