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Weather: Some morning showers then becoming partly cloudy, windy and warmer this afternoon with a high of 45 (7C). Cloudy and not as cold tonight with a low of 29 (-2C). Thursday, partly cloudy and warmer with a high of 49 (9C).
Bob Brubacher/Daily Nebraskan

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Dan Dulaney/Daily Nebraskan

Sullivan demonstrates how HERO 1.0 can be an "unquestioning lab assistant."

Droid sees, hears and speaks

Agriculture department uses robot for education, training

By Dave Gocken
Staff Reporter

R2D2 he isn't. But the agriculture engineering department's robot, known as HERO 1.0, has many things in common with his "Star Wars" cousin.

Neil Sullivan, an agriculture engineering instructor and the robot's creator, showed how HERO can walk, pickup and place objects and memorize detailed commands. The robot also can see, hear and speak.

Sullivan and his students built the robot from a kit three years ago for an Engineering-Week project. Now, HERO is used as an educational and training unit.

Sullivan said the possibility of starting a robotics class in the industrial engineering department in the near future exists. He said the course probably will be an introductory course dealing with theories and applications of robots and open to any engineering students.

From the inside, HERO looks like most robots, including R2D2.

With HERO's outer cover removed, the robot's circuit boards appear. Each function is isolated on a spe-

cific board and labeled. The robot is battery-powered and can be programmed to memorize and follow a given set of instructions or operated by a hand-held control box.

HERO's memory can store 64,000 pieces of information, giving it the ability to carry out lengthy or detailed assignments.

Sullivan said the robot's sight comes from a radar device commonly found in Polaroid cameras. It lets the robot detect motion and make navigation and distance calculations.

HERO also has a voice synthesizer that carries 64 phonetic sounds, including various degrees of inflection, he said. The robot can speak any phrase in any language with this feature. All functional commands, including speech, are programmed into the robot's computer brain by punching the keyboard digits on top of the unit.

Most robots in use today are employed in highly dangerous, repetitive or boring jobs, Sullivan said. The auto industry uses many robots for jobs like precision welding and painting.

Although robots have a high initial cost, they can compete effectively

with human labor, Sullivan said. Robots never sleep, take a lunch break or get bored with their tasks. They can keep production costs low and maintain high quality standards, he said.

Many people, especially those in labor-related jobs, fear robots will put them out of work because they won't be able to compete with robots' speed and efficiency, Sullivan said.

Robots probably will replace humans on the assembly line, Sullivan said. But these people will be retrained to do tasks that robots cannot, such as designing, teaching, supervising, and servicing these machines, he said.

According to Sullivan, studies are being done with artificial intelligence that would allow robots to make decisions using programmed logic rather than having to respond with only a limited number of assigned instructions.

Using robots in agriculture is limited now. While agriculture has many boring or repetitive jobs, Sullivan said, several obstacles hinder use of robots on farms.

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UNL official asks state for more student aid

By Brad Gifford
Senior Reporter

State aid for students must be increased to fill the gaping void created by federal aid reductions, according to a host of students and education officials who testified at Tuesday's Education Committee hearing at the Capitol.

A statewide work-study program would be the first step Nebraska could take on the state student aid staircase, said supporters of a bill that would provide such a program.

Under LB113, resident students at Nebraska colleges and universities could work for non-profit businesses

and local or state government agencies to earn up to \$1,800 a year. Those employers would pay 30 percent of students' salaries, and the state would pay the rest.

Don Aripoli, director of Scholarships and Financial Aid at UNL, estimated that unmet need for student aid in Nebraska is \$22.8 million.

"We really don't need to look at funding that whole gap," Aripoli said. "But if you can give \$1 million that's \$1 million less that we need."

Aripoli termed work-study an "attractive option" and one part of what he hopes will become a balanced package of state aid.

Work-study provides more than student aid for needy students, he said. It gives students a chance to "test out" career areas by giving them a taste of everyday work. Work-study brings more money to colleges and universities by enabling more people to enroll. Aripoli added that research has proved students who are employed perform better academically.

No one testified against the measure. Debate on whether private, profit-oriented businesses should be allowed to participate in the program prompted the only controversy.

Mike Abdouch, representing the Council of Private Vocational Schools,

said profit-oriented businesses should be included to save the state money and to provide more applicable experience to students. He said that states that limit their programs to non-profit organizations end up paying about 70 percent of the students' salaries.

Tore Nelson of Emerson, a Wayne State College student, told the committee that profit-oriented businesses would be encouraged to hire students merely because they would be less expensive than traditional employees. Nelson said students would displace workers who need those jobs just as badly. Work-study would, in this case, be a state subsidy to business, he said.

State Sen. Gerald Conway of Wayne, co-sponsor of the bill, agreed that private businesses should remain exempt and said he opposed an amendment that would include them.

Since 1981, federal student funding has decreased 20 percent. The administration's fiscal 1986 budget calls for a \$2.3 million reduction, which would drop one million students from federal programs. Guaranteed Student Loans would go to students where families make less than \$32,500 a year. A \$25,000 income cap would be placed on Pell Grant applicants and students could receive no more than \$4,000 annually in federal aid.

Where to go to vote

Polls for today's ASUN election will be open from 8 a.m. until 8 p.m. at three locations on campus.

Mariene Beyke, ASUN director of development, said voting booths will be at the Nebraska and East unions and in Nebraska Hall on City Campus.

Beyke said students wishing to vote must bring their current student I.D. card. Those students who have submitted their student I.D. with their football ticket application also will be eligible to vote. But to do so, they must vote at the ASUN office, Nebraska Union 115.

Foreign lands offer diverse student jobs

By Jonathan Taylor
Staff Reporter

Editor's note: This is the third article in a five-part series exploring ways students can spend the summer. Other articles will be on traveling opportunities here and abroad, as well as a look at some locally based internship programs. Because most of these programs have early deadlines, it's important for students to start applying now — besides, it's almost summer.

Looking for adventure and not just a job this summer?

Then consider working serving beer in an Irish pub, farming in the United Kingdom, carrying bags in a French hotel or construction work in Germany. Although job availability in Lincoln

and abroad is tight, officials at UNL's International Educational Services say that if students really want to learn about a country's culture, they have to work with the people.

Christa Joy, coordinator of tour programs at the Overseas Opportunity Center, Nebraska Union 345, said it's not too late to pursue an interest in overseas employment. But because it takes about two months to get a passport and work permit, students should start immediately.

Students who want to work abroad first must submit applications for a work permit to the Council on International Education Exchange. They are available at the OOC office.

To be eligible, applicants must be 18, a full-time student, a U.S. citizen and have proof of language ability in
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U.S.-Soviet officials strive for secrecy

The Greater News Report
GENEVA — The United States resumed arms negotiations with the Soviet Union Tuesday after a 15-month break and called the first session "serious and businesslike." But chief U.S. negotiator Max Kampelman said he and Soviet delegation leader Viktor Karpov had agreed on a "principle of confidentiality" that barred giving details.

The Kremlin's latest leadership change lifted Western hopes slightly as the three-tiered negotiations on space weapons and strategic and medium-range nuclear missiles opened behind the high iron gates of the Soviet mission to the United Nations in Geneva.

Kampelman did not say how deeply issues of substance were discussed

at the 2 1/4-hour meeting or if, as officials hinted beforehand, it was devoted mainly to planning a work program for negotiations that were likely to take several years.

Other diplomats said a session scheduled for a U.S. office building on Thursday would start getting into real detail on issues of substance. They acknowledged Tuesday's meeting was lengthy and might have involved some substantive issues.

The talks opened on schedule despite the death of Soviet President Konstantin Chernenko late Sunday and his swift replacement as Communist Party leader by Mikhail Gorbachev on Monday. A U.S. offer to delay for a few days was
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