

Making electronics with a twist

WASHINGTON: Researchers have made electronics that can bend, stretch and now twist as well, considered the ultimate in the subject.

Yonggang Huang, professor of civil engineering at Northwestern University's McCormick School of Engineering and Applied Science, and John Rogers, professor of materials science and Engineering at University of Illinois (Urbana-Champaign), have improved their "pop-up" technology to create circuits that can be twisted.

Such electronics could be used in places where flat, unbending electronics would fail, like on the human body.

Electronic components have been flat and inflexible

because silicon, the principal component of all electronics, is brittle and inflexible. Any significant bending or stretching renders an electronic device useless.

Huang and Rogers developed a method to fabricate stretchable electronics that increases the stretching range (as much as 140 percent) and allows the user to subject circuits to extreme twisting.

This emerging technology promises new flexible sensors, transmitters, new photovoltaic and microfluidic devices, and other applications for medical and athletic use.

The partnership -- where Huang focuses on theory, and Rogers focuses on experiments -- has been fruitful for the past several

years.

Back in 2005, the pair developed a one-dimensional, stretchable form of single-crystal silicon that could be stretched in one direction without altering its electrical properties; the results were published by the journal Science in 2006.

Earlier this year they made stretchable integrated circuits, according to a Northwestern release.

Next, the researchers developed a new kind of technology that allowed circuits to be placed on a curved surface. That technology used an array of circuit elements approximately 100 micrometres square that were connected by metal "pop-up bridges."

The circuit elements were

so small that when placed on a curved surface, they didn't bend -- similar to how buildings don't bend on the curved Earth. The system worked because these elements were connected by metal wires that popped up when bent or stretched. The research was the cover article in Nature in early August.

Huang and Rogers took their pop-up bridges and made them into an "S" shape, which, in addition to bending and stretching, have enough give that they can be twisted as well.

Huang and Rogers now are focusing their research on another important application of this technology: solar panels.

Their research is published online by the Proceedings of the National Academy of Sciences (PNAS).

(NUSI demand inquiry....

Conti... from...01)

Shanta Laxman Singh, Mahila Morcha President, Mr. Noor Islam, Chief Seva Dal, Mr. Sanjay Choudhary, ANTCC, General Secretary, Mr. Mangal Singh, Mr. A.R. Manickam, ANTCC, General Secretary, Mr. Yeshwant Lal, Mr. R.K. Raj, District General Secretary, and many other senior leaders of the Party participated.

(Martyrdom Day Conti... from...01)

0800 hrs. Akhand Path , the final ceremony (Bhog) 24/11/08 at 0800 hrs. Shabad Kirtan and speeches on the life of Shri. Guru Tegh Bahadur Sahib-Ji from 0800 hrs to 1230 hrs on 24/11/08. Guru Ka Langar will be served from 22nd to 24th November 2008.

Inflation eases to 8.90%, may prompt RBI to infuse more cash

New Delhi, Nov 20: Inflation has further declined to 8.90% for the week ended November 8 from 8.98% a week ago, a development that may prompt the Reserve Bank to inject more liquidity into the system to overcome the cash crunch. The inflation, measured by movement in wholesale prices, has come down by 0.08

percentage points mainly on account of declining prices of fuel items, triggered by fall in international crude prices. While the prices of light diesel oil (LDO) dipped sharply by 11% during the week, in case of furnace oil and aviation fuel they came down by nine percent and five percent, respectively.

(Island boys

Conti... from...01)

play their matches against Brunei, Pakistan and Thailand on Nov 19, 21 and 23 respectively. The tournament will conclude on Nov 26, a communication received here said.

(Cross country

Conti... from...01)

Further details can be obtained from the office during working hours or over phone No. 9933279569/ 9474210251/ 9434283593, a communication said here today.

(Diglipur in ful...

Conti... from...01)

Governor, Lt. General, Bhopinder Singh PVSM, AVSM is scheduled to inaugurate the BNPIC at 10.00 AM on 22nd November, 2008 while the Member of Parliament, Mr. Manoranjan Bhakta will be the Guest of Honour on the occasion.

The Core Committee of the BNPIC met here this afternoon under the Chairmanship of the Deputy Commissioner, N&MA District Mr. D.R. Tamta to review the pace of progress in respect of smooth conduct of the event. He asked for some corrective measures to be taken by various departments to further spruce up the venue.

(Provide standard....

Conti... from...01)

which have a capacity of hardly 65 passengers but in both the vessels passengers are at present carried like cattle, at present. Sometimes more than 750 passengers travel in these ferry boats risking life of all of them.

The Administration must think of providing better and bigger boats for ferrying between Port Blair and Bambooflat area, where thousands of passengers travel up and down every day. Vehicle Ferries like MV Kadamtala with bigger platform should be inducted.

There is a section of society which believe that constructing a bridge between Chatham and Bambooflat, Panigbat or Minnie Bay to Mithakhari, would be the best and long time solution to this problem.

If Administration plans properly and take right initiatives at the right time then islanders of these far-flung areas will get rid of the curse of travelling like cattle.

(Poachers suffer rage....

Conti... from...01)



their deadly arrows, seeing which other fishermen jumped into the sea and fled away. Three other fishermen T. Joga Rao, 26 years suffered injuries on his face, V Krishna Rao, 19 years suffered injuries on his hands, legs and back while A Krishna Roa, 26 years got injuries on his back. The dead body and all three injured fishermen were later brought to PS Haddo. The dinghy carrying all these four victims reached Chatham Port at 2.00 AM on 20.11.2008. B Erraiah was cremated at Port Blair after post mortem today, while three injured fishermen were admitted at G B Pant Hospital. The eight member fishermen team has started from Diglipur on November 8, 2008 for Port Blair. Meanwhile police department has registered two FIRs in this regard, one for the

murder while the other against the fishermen for entering inside tribal reserve forest.

This incident have once again proved that Jarawa people are really running short of food-stuffs, perhaps this is the reason why even for a little quantity of food they are ready to kill others. According to victims who survived the Jarawa attack the Jarawa Tribes were saying "Hum log bhukha hai" (we are hungry). The tribal welfare department have been claiming to supply sufficient amount of food-stuffs to Jarawa people, if things are that way then, why Jarawa people could be seen frequently begging for food on the ATR road and why they become so violent for a very little quantity of rice.

(Valedictory

Conti... from...01)

Societies for their efficient and effective functioning. Speaking on the occasion, Mr. M. Z. Siddiqui, Ex-MD, CCS Ltd. and ex-GS of A&N State Coop. Union said that the CCS Ltd. is a very old coop. Stores in the consumers sector which has branches all over the UT of A&N Islands to help the consumers and to held the price-line, but the present condition of the society (in which 300 persons are employed for their livelihood) is in deteriorating condition and some remedial measures need to be taken to save the livelihood of its employees and provide job security to them. He also emphasized that the A&N Islands Coop. Societies Regulation 1973 and the Rules framed are under should be amended in the line Model Cooperative Act as recommended by Ch. Bramha Prakash Committee for democratization of cooperative societies.

Earlier Mr. Ghayas Meshack, Director A&N State Coop. Union welcome the gathering. Later on Mr. Kuldeep Rai Sharma, Chairman, A&N State Cooperative Union, while addressing, said that steps will

be taken by the A&N State Cooperative Union to look into the problems of CCS Ltd. and the Union will try to find out some remedial measures in consultation with the officers of the Cooperative Department and the Managing Committee of CCS Ltd. to resolve the problems as far as possible.

The valedictory function, included a colourful cultural programme in the shape of Inter School Dance Competition, in which the Govt. Govt. Model Sr. Secondary School secured the first prize (Rs. 5,000/- in cash and a trophy), Govt. Sr. Secondary School, School Line secured the second prize (Rs. 3,000/- in cash and a trophy) and Nirmala Sr. Secondary School. Three other participant schools were given consolation prize Rs. 1,000/- each. The chief Guest of the valedictory function, Mr. K. Saxena, RCS gave away the prizes to the winners of Inter School Dance Competition as well as various other competitions namely, Drawing Competition, School-level Essay Competition (English Competition (English & Hindi). Mr. Anant Rao, Joint Secretary A&NCOU proposed the vote of thanks.