Star TECH

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Galaxy Game

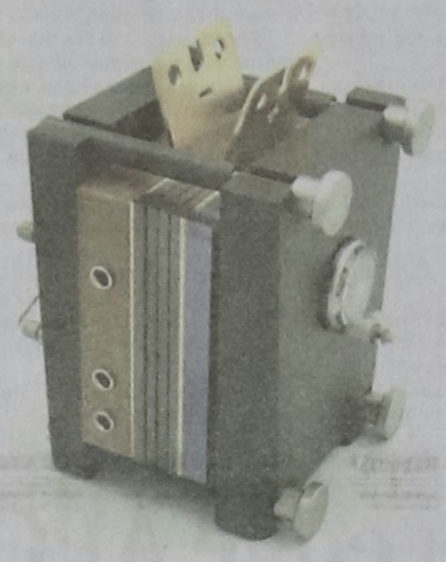
The Galaxy Game is the earliest known coin-operated computer or video game. It was installed at the Tresidder Union at Stanford University in September, 1971, two months before the release of Computer Space, the first mass-produced such game. Only one unit was built initially, although the game later included several consoles allowing users to play against each other. The game was programmed by Bill Pitts and Hugh Tuck. Like Computer Space, it was a version of the existing Spacewar! and ported to a variety of platforms since then.

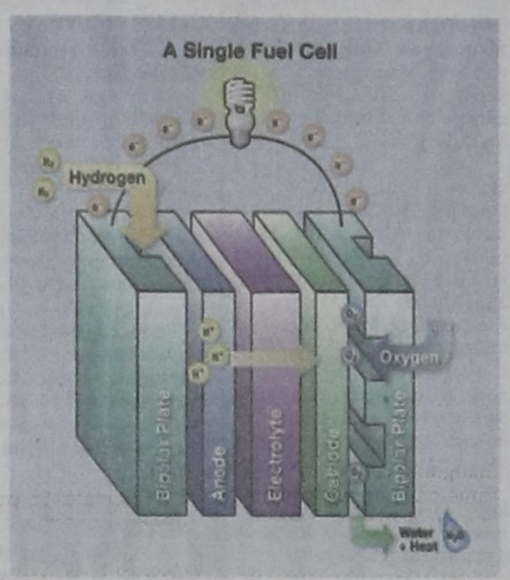
TECHFOCUS

Fuel Cells

Power sources of tomorrow

NAHID AKHTER





WHAT would it be like if all the world's cars stopped harmful emissions and all our power needs were met by a single battery a fuel cell that would give us the power to charge our portables as well as provide all the electricity needs for our homes? This is not a dream, as scientists insist that fuel cells are the power sources of the future.

Efficient and environment-friendly power sources have become the need of the day. With growing concerns over Global Warming and depletion of fossil fuels, it has become a necessity to find a technology that will deliver energy efficiently and cleanly. Experts believe that fuel cells can provide an ideal solution to all these concerns. They convert energy more efficiently than conventional power sources such as the internal combustion engine-some of them more than twice as efficiently. Secondly, fuel cells produce almost no pollution.

They also have engineering advantages. Because there are no moving parts inside a fuel cell, there's none of the noise and vibration associated with spinning turbines and moving pistons. That makes fuel cells quiet, and less prone to wear and tear.

Problems remain, however, primarily with cost, reliability and power density-the amount of power fuel cells produce for their volume or mass. They also have to compete with long-established technologies. Vehicles powered by fuel cells could require whole new refueling infrastructures, and all fuel cells will need qualified and trained support staff. Then again, that's what happens when any new technology is introduced.

Although there are many types of fuel cells, they all work in essentially the same way. The basic set-up consists of two electrodes separated by an electrolyte-a substance that conducts electricity. A fuel such as hydrogen, natural gas or methanol enters at one electrode, and an oxidant, usually oxygen from the air, at the other. These undergo a redox reaction across the electrolyte, releasing energy which pushes electrons round an external circuit. Because the fuel doesn't actually burn, fuel cells don't produce the pollutants associated with combustion, such as carbon monoxide, soot and oxides of nitrogen. Cells that use fossil fuels produce water and carbon dioxide as waste products. Cells that use hydrogen generate only water.

To understand in detail how fuel cells work, it's worth considering one type, the proton exchange membrane cell, which is widely regarded as the most promising for light-duty transportation. Here, hydrogen gas flows through channels to the anode, where a catalyst causes the hydrogen molecules to separate into protons and electrons. The membrane allows only the protons to pass through it. While the protons are conducted through the membrane to the other side of the cell, the stream of negatively-charged electrons follows an external circuit to the cathode. This flow of electrons is electricity that can be used to do work, such as power a motor.

On the other side of the cell, oxygen gas, typically drawn from the outside air, flows through channels to the cathode. When the electrons return from doing work, they react with oxygen and the hydrogen protons (which have moved through the membrane) at the cathode to form water. This union is an exothermic reaction, generating heat that can be used outside the fuel cell.

The power produced by a fuel cell depends on several factors, including the fuel cell type, size, temperature at which it operates, and pressure at which gases are supplied. A single fuel cell produces approximately 1 volt or less barely enough electricity for even the smallest applications. To increase the amount of electricity generated, individual fuel cells are combined in series to form a stack. (The term "fuel cell" is often used to refer to the entire stack, as well as to the individual cell.) Depending on the application, a fuel cell stack may contain only a few or as many as hundreds of individual cells layered together. This "scalability" makes fuel cells ideal for a wide variety of applications, from laptop computers (50-100 Watts) to homes (1-5kW), vehicles (50-125 kW), and central power generation (1-200 MW or more).

Some of the PEM cell's main features are its ability to start quickly and to run at moderate temperatures, which means that it does not need to heat up very much in order to run. The PEM fuel cell is compact and lightweight: a big advantage for cars. Furthermore, its maximum efficiency of 60% (energy delivered from hydrogen to motor as electricity) is about 3 times greater than the efficiency of internal combustion engines (most of the energy from combustion is lost in heat and friction before it even pushes down on the pistons).

Fuel cells themselves are very safe. No combustion or detonation takes place, and the only moving parts are those pumping the fuel and oxidant around, so catastrophic failures such as turbine blades breaking or pistons seizing are impossible. However, the main danger-as with today's engines-is the fuel. Hydrogen is combustible in air at a wide range of concentrations, but the flame radiates almost no heat. In a hydrogen-vehicle fire, almost nothing other than the fuel should ignite. In addition, hydrogen disperses very rapidly, and fires burn out more quickly than petrol fires.

Some companies like Mercedes-Benz, BMW, Mazda, and Ballard Power Systems have already introduced their hydrogen fueled vehicles on the road. Buses powered by PEM fuel cells have been successfully tested in Vancouver and Chicago. Passenger cars in California have being built by Ford, General Motors and DaimlerChrysler in response to California's zero-emission laws.

Fuel cells are also being demonstrated as stationary power sources. A few houses in Japan, Germany and the US use PEM systems to provide electricity and heat. Larger systems are also in operation. A police station in Central Park, New York, relies on a 200-kilowatt phosphoric acid fuel cell to provide its electricity and heating. The system was built by US company International Fuel Cells and cost about $1 million, but that's less than it would have cost to dig up the park and lay electricity cables.

At the moment, cost-reduction and durability enhancement are the two most significant challenges to fuel cell commercialization. Fuel cell systems must be cost-competitive with, and perform as well or better than, traditional power technologies over the life of the system. Ongoing research is focused on identifying and developing new materials that will reduce the cost and extend the life of fuel cell components. Low cost, high volume manufacturing processes will also help to make fuel cell systems cost competitive with traditional technologies

Legislative bodies around the world seem certain to follow California's lead and introduce laws demanding zero-emission vehicles, and this will probably ensure that fuel cells make it into some parts of the transport market in the near future. Although for Bangladesh and other developing nations, it will require some time for the fuel cell technology to commercialise, it is something worth thinking about, considering the rising demand for fuels and their diminishing supplies.

TECHNEWS

Nokia goes for vibrant ecosystem with developers

ROBIN GAZI, *back from Kuala Lumpur*

NOKIA in its attempt to create a "vibrant ecosystem with developers" has recently come to their aid and decided to take care of the distribution of the software for them through Ovi Store.

In a conference titled Nokia OneConnected World held at the Hilton in Kuala Lumpur, Malaysia, the company announced that it is committed to make the lives of third party software developers and content providers easier, which would end up benefiting Nokia users and service providers.

Nokia believes that content is king but distribution is King Kong and their move to come to the aid of developers and content providers is a step forward in providing localised services to its consumers.

Almost 1.3 billion people are using internet in the world and nearly 40 percent of them log on with mobile devices. Nearly 55 million people use Ovi Store, Nokia's online store.

Nokia, the company that is dominating the handheld industry, knows that now asking "where are you" has become as important as "how are you". The "one size fits all" business attitude has to change since consumers are demanding more and more custom software that provides service they way they want them.

The Nokia OneConnected World also held a showcase of Nokia handsets after presentation of the business idea. The company introduced X6, X3 (offshoots from the Nokia Expressmusic line) and the rather slick N97 mini.

Talking to a few Bangladeshi journalists, Kenny Mathers, head of Developers Relation, Forum Nokia Asia Pacific, and Moutushi Kabir, Nokia Bangladesh chief, said distribution of software is expensive and since firms find it difficult to distribute their content, they have to cut cost in development and expansion. They said by taking care of the distribution the companies would be able to concentrate more on what they actually do.

They believe that since Nokia content would be distributed via Ovi Store, it would also create a healthy competitive atmosphere for the developers. They have even organised a competition for them which is scheduled to be held this month.

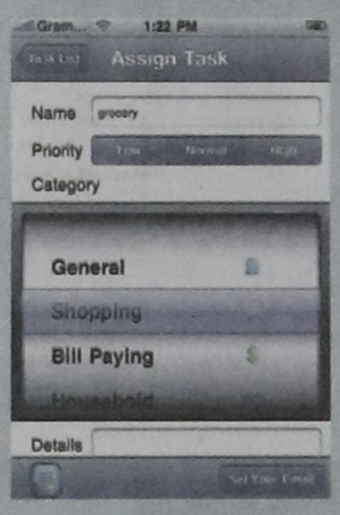
On how this move is relevant to Bangladesh, Mathers said there will be localised content at the store as well as software that would help farmers of the sub-continent know what to do and when to do regarding farming.

TECHNEWS

Local company develops application for Apple's app Store

STARTECH DESK

NAZIMCORP Resource Gateway (NRG) recently developed the 'Program Your Spouse' solution, its first application for Apple's app store, says a news release. The company claims to be the first ever ICT company in Bangladesh to become a direct developer of such an application and actually place it on the app store online.



"The easy-to-use daily task manager is the perfect solution for people who tend to forget their everyday jobs due to a busy lifestyle," said Lutfar Rahman Nirjhar, chief executive officer of NRG.

He also said that through the application, its users would be able to ensure the completion of all tasks on time. He also expressed his hope that the application's usability with categorisation of users, prioritisation of tasks and simple interface will surely make this an ardent application of any iPhone user's daily life. The application is available in the Apple app store at $0.99 only.

'Although there were some foreign companies who outsourced from Bangladesh, we developed the application by ourselves with the sole motive of placing it as a product on the app store,' said Nazim Farhan Choudhury, chief vision officer, NRG.

He also said 'this is just our guinea-pig product. We are developing two other major products for app store that will ensure better resource sharing,' adding that these two applications will also be available in the store shortly.

About the current state of the IT sector, he said, "already identified as a thrust sector, this particular industry has a huge potential at channeling in foreign currency through such endeavors and other innovative projects, provided proper encouragement and support are received from concerned authorities. Only then firms like NRG and others can contribute toward realizing the vision of a Digital Bangladesh by 2021."

TECHNEWS

Go anywhere in style with Seashell Eee PC

STAR TECH DESK

GLOBAL Brand Pvt. Ltd. (GBPL) the authorised distributor of Asus in Bangladesh has announced the release of the 1005HA Seashell Eee PC based on the Intel Atom N270 processor with 1.6 GHz. of speed, says a press release.

The 10.1" netbook features an LED backlit screen and Super Hybrid Engine technology that enables its 3-cell Li-ion battery to power the unit for up to 3.5 hours on a single charge. The 1005HA is the first Eee PC to offer ASUS' new Eee Docking software which provides easy access to utilities and software from a dock at the top of the screen.

The 1005HA comes with Windows XP Home and also includes a large 92% keyboard with full size shift keys. Other features include 1GB memory, 160 GB SATA hard drive, built-in audio, 802.11a/b/n Wi-Fi connectivity, webcam, memory card reader etc.

The product has a price-tag of Taka 27,500.

Color inkjet all-in-one with fax

BROTHER'S compact MFC-250c is a multifunction device that can print, copy, scan and fax. Perfectly suited for all printing needs, this all-in-one printer's mono Print Speed up to 27 ppm, color Print Speed 22 ppm, having 32MB Standard Memory, up to 100 sheets Paper Capacity, says a press release.

Print photos on demand from your PictBridge-enabled camera or USB flash drive with high resolutions up to 6000 x 1200 dpi. Plus, it offers versatile scanning capabilities to E-mail, file, OCR and more, using a variety of formats including JPEG, TIFF and PDF.

For its Stand-alone functionality, it can also fax, copy or photo print without PC. Lastly, you can use the flatbed document glass to copy bound, thick or odd shaped documents. The product has a price-tag of Taka 10,500/-.

TECHPHOTO

UNICYCLE ROBOT

Japanese electronics parts maker Murata Electronics unveils its new unicycle robot called the "Murata-seiko-chan" during a demonstration at Nagaokakyo city in Kyoto prefecture, western Japan on September 26. The robot, 50cm in tall and weighing 6kg, has various sensors which it uses to keep its balance as it wheels forward and turns corners.

PHOTO: AFP