



Singapore 2010 Youth Olympic Games

The Virtual World, an artist's impression only. The actual design may differ from illustration

ST Electronics joins in the action for the first-ever Youth Olympic Games to be held in Singapore in 2010

Virtual world for Singapore 2010 Youth Olympic Games

Imagine flying over the Singapore 2010 Youth Olympic Games venues and immersing yourself in exciting games and quests, then crossing physical boundaries and interacting with people across the globe anywhere, anytime.

Sounds impossible? This could very well be what youths around the world will experience in the near future.

ST Electronics was awarded a contract by the Infocomm Development Authority (IDA) of Singapore to create and operate a three-dimensional Virtual World for the first Youth Olympic Games, which will be held in Singapore in 2010. This is the first

time that a Virtual World will be used to publicise an Olympic event.

The Virtual World, to be launched online progressively from early 2010, will help to promote friendship and connect youths from the 205 National Olympic Committees ahead of the Singapore 2010 Youth Olympic Games. Once launched, anyone with access to the Internet from all over the world will be able to register and play the exciting interactive games in the Virtual World. Highly engaging in nature, the 'in-world' experience in the Virtual World will allow youths to interact with one another and participate in the numerous individual and team activities that are related to

sports, culture and education.

The Virtual World is a joint initiative by the Singapore Youth Olympic Games Organising Committee and iDA to establish Singapore's leadership in embracing advanced digital media technology, as it gains popularity and pervasiveness among consumers and enterprises.

There are plans for the Virtual World application to be extended to education, entertainment and social interaction after the Singapore 2010 Youth Olympic Games.

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Pre-paid card system for the Games Village

Another Youth Olympic Games-related project undertaken by ST Electronics is the supply and installation of a new pre-paid card system for use of air-conditioning at the Nanyang Technological University (NTU) halls of residence – the designated Games Village.

As the official residence for all athletes during the games, NTU has to make major preparation works to ensure that the living condition is up to the games' standards. These include the installation of energy efficient air-conditioning units to the living quarters housing the thousands of participants and delegations.

As in all major events, there is a need to address post-games issues such as the systems that will be left behind after the curtain comes down. For NTU, the installed air-conditioners for the games in the Halls of Residence will be serviced to generate a future lifecycle. NTU plans to charge future students staying in these halls for the usage of the air-conditioned facilities.

ST Electronics has been awarded the contract to supply and install a new Pre-paid Card System to be fully integrated with the operation of upgraded and newly installed air-conditioning units in each of the 3,861 hostel rooms to provide a convenient automated cashless payment solution using pre-paid contactless smart cards.

The system is designed to allow consumers to pay for the usage of the air-conditioned facilities in their rooms based on their consumption needs. \$Value (token) in the card holder pre-paid card is deducted in accordance to the usage of the air-conditioner, based on a time-based tariff rate as determined by the University.

The Pre-paid Card System

The pre-paid card system comprises:

- **System computer workstations housed in the hall offices** to manage the operation of the pre-paid reader network and top-up kiosks. The workstation is installed with intuitive Graphic User Interface (GUI) for system administration and management. Transaction records of each individual card reader will be updated to the Hall office through LAN cables. The workstation is equipped with: (a) printer for alarm log and report generation, (b) personalisation card reader for card administration, and (c) LAN / local wireless interface for campus-wide centralised management.
- **Top-up kiosk** for the pre-paid cards top-up service. The kiosk is equipped with: (a) a robust industrial computer, top-up software for system operation and interface to NETS services, (b) Touch screen for user interface, (c) Pre-paid card reader, (d) NETS proprietary cashcard/ATM card terminals, and (e) NETS dial up modem
- **Pre-paid card readers** installed in every hostel room, to interface the power switch to the air-conditioning fan coil unit and for reading the pre-paid card data, \$Value usage.
- **Central system computer servers and workstation** housed at the Student Service Centre office to provide the centralised database for transactions monitoring, consolidation, set tariffs and reports generation for all the Undergraduate Halls. The central system computer is equipped with: (a) system and standby servers, (b) client workstation with printer for alarm log and report generation, and (c) local wireless interfaces for campus-



Pre-paid card reader

wide centralised management.

- **System computer workstations housed at the International Student Centre office** to mirror the database for transactions monitoring, consolidation, set tariffs and reports generation for the Post Graduate Hall. The workstation is equipped with (a) printer for alarm log and report generation, (b) personalisation card reader for card administration, and (c) local wireless interfaces.

System Operation

The function of the pre-paid card system, a debit system, is to provide a convenient "Pay-as-You-Use" feature when using the air conditioning system installed in each hostel room. The key benefits to NTU management is a means of accounting for the electricity usage and provides an upfront collection of electricity bill without any late payment or payment in arrears problems.

- Specially customised pre-paid card readers are installed inside every hostel room with one reader for each air-conditioner fan unit.
- To use the air-conditioning, the student needs to purchase a pre-paid card pre-coded with \$Value (token) from the university administration office.
- To turn on the air-conditioner in the room, the student must first insert the prepaid card into the card reader. The \$Value is displayed on the LCD. Only when there is sufficient \$Value in the card will the power line circuit be activated, setting the air-conditioner to standby mode. The student can then turn on the power for the air-conditioner unit with a remote control.

- The reader will detect the amount of electricity being used and deduct the applicable cost. A warning indication will appear on the LCD screen together with an audible alarm when the \$Value drops to the preset minimum value determined by NTU management. Power supply will automatically be cut off once the \$Value of the pre-paid card goes to zero or when the student removes the card at the end of the transaction cycle.



A typical hall system workstation

- The \$Value of the pre-paid card can be topped-up at the respective automatic Top-up Kiosk stationed conveniently outside the Hall office. It will be in operation round the clock.
- The tariff rate charged to the student is set at the Central System Management at the SCC and ISC. This tariff rate is sent to each individual Hall office and broadcasted to all the card readers in the respective halls.
- All transactions, activities audit trail and alarms are captured at the readers and uploaded to the system management computers and central server database for report generation.



Top-up kiosk

The System is scheduled for substantial completion by end December 2009.