Progress Report

“e-Solutions for Community using Low-cost Wi-Fi”

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## Presentation Layout

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Background

Meeting of COMSATS’ thematic research group on information and communication technologies (ICTs).
Organized By: COMSATS H/Q & CIIT
Held On: April 19-20, 2011,

Partcipitant

- COMSATS Institute of Information Technology (CIIT), Pakistan (Lead Centre)
- **Mr. Oladejo Olutunji** Principal Programmer, National Mathematical Centre (NMC), Nigeria
- **Mr. Shadi Al-Asfeh** Systems Analyst Royal Scientific Society (RSS), Jordan
- **Dr. Abdul Hanan bin Abdullah** Dean Faculty of Computer Science & Information System, Universiti Teknologi Malaysia (UTM), Malaysia
Background

Research Theme

- Participants selected a main research theme to be undertaken by the Group, titled ‘e-Solutions for Community using Low-cost Wi-Fi’.
- Under the theme group has initially targeted establishment off Wi-Fi connectivity and e-Health solutions.
- Whereas the group also agree to work on e-Learning and e-Agriculture.
Flowchart of the Theme

e-SOLUTIONS FOR COMMUNITY USING LOW-COST WI-FI

WiFi Connectivity
ENABLING ICT APPLICATIONS USING LONG DISTANCE WI-FI NETWORKS

- e-Health Solutions
  3D GRAPHICAL IMAGERY THERAPY FOR HEALING BRAIN TUMORS IN CHILDREN

- e-Learning Solutions
  AUGMENTING TRADITIONAL LEARNING BY USING E-LEARNING: CONCEPTS, TOOLS AND METHOD

- E-Agriculture Solutions
  PRECISION AGRICULTURE
Idea: Solutions for challenging rural and underserved environments through building affordable, robust and reliable ICT systems.

By providing cheap connectivity between developed and remote areas, illiteracy, health problems and poverty can be alleviated.

Wi-Fi is the most suitable option:
- Affordable costs
- Easier reach to far flung rural areas
- Desirable data rates
- Less maintenance overheads
WiFi Connectivity
Enabling ICT Applications Using Long Distance Wi-Fi Networks

Progress

- The initial step of the project was done by implementation of a prototype and long distance Wifi link is carried out for the provision testing of various e-applications. Primarily Pakistan Telecommunication Limited (PTCL) and Pakistan Telecommunication Authority (PTA) were approached for legal & technical cooperation and for possible joint venture.

- A meeting with the General Manager operations at COMSATS Internet Service (CIS) was held, to discuss the possible collaboration on the above mentioned project.

- CIIT could now participate in CIS project of tele-Health where we can provide the link to remotest place of Northern Area of Pakistan

- NMC Nigeria & UTM Malaysia has shown interest in this project.
e-Health Solutions
3D Graphical Imagery Therapy For Healing Brain Tumors In Children

- **Idea:** Curing brain tumor in children by Image Therapy/Psychological Therapy through video games.

- Three dimensional animated graphical representation is a tool which can be used to facilitate the guided imagery sessions in children with brain tumors.

- 3D animated imagination in form of PC game for children with brain tumors will provide the explanation of - how the tumors can be attacked by the immune system within their bodies.

- Immune cells are used as the weapons against tumors.
Progress

- The project is funded by ICT R&D Funds, Ministry of IT Government of Pakistan.
- The first milestone of the Project is completed (i.e. the prototype of the game is ready).
- This prototype game will now be tested for its acceptability, improvement etc. in the Shaukat Khanam Cancer Hospital in Pakistan.
- UTM Malaysia has shown interest in this project.
**Idea:** Making best possible use of existing specialized faculty in the developing countries through developing e-Learning framework for low-cost specialized knowledge dissemination.

- Develop and assess effectiveness of courses.

- The project components include:
  - IT augmented learning material
  - Lecture efficacy monitoring
  - Artificial Intelligence techniques
  - Video conferencing
  - Online examinations
Progress

- Presently, the options are opened for all the participating countries to work on development of computer-assisted learning environments for adult basic education keeping in view the theoretical foundation of learning processes.

- NMC Nigeria has shown interest in this project.
e-Agriculture Solutions
Precision Agriculture

- **Idea:** Farmers’ low access to appropriate technologies and state of the art research and innovation is the key challenge to the developing countries agriculture sectors.

- Precision Agriculture as optimizing crop production.

- Wireless Sensor Networks (WSNs)
  - Better spatial and temporal resolution of data
  - Cheaper costs
Progress

- The progress is slow of this project as the priority was not given to it. The TRG-ICT is in need of active collaboration in this project.
- The **Royal Scientific Society Jordan** has shown deep interest in this project.
Graphical Overview of Projects

- WIFI: 57%
- 3DGIT: 55%
- E-Learning: 14%
- E-Agriculture: 5%
Thank You