PROGRESS REPORT

"e-Solutions for Community using Low-cost Wi-Fi"

Presented By: Prof. Dr. Sajjad Mohsin

PresentationPoint

BACKGROUND

Meeting of COMSATS' thematic research group on information and communication technologies (ICTs).
Organized By: Commission on Science and Technology
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

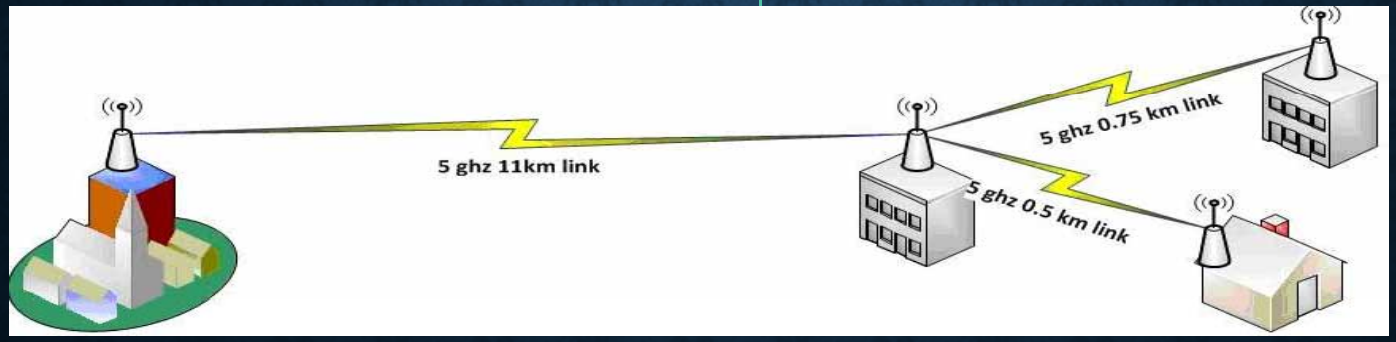
e-Agriculture Solutions

PRECISION AGRICULTURE

WiFi Conectivity
Enabling ICT Applications Using Long Distance Wi-Fi Networks

- **Idea: S**olutions 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	- Desirable data rates
-Easier reach to far flung rural areas	-Less maintenance overheads

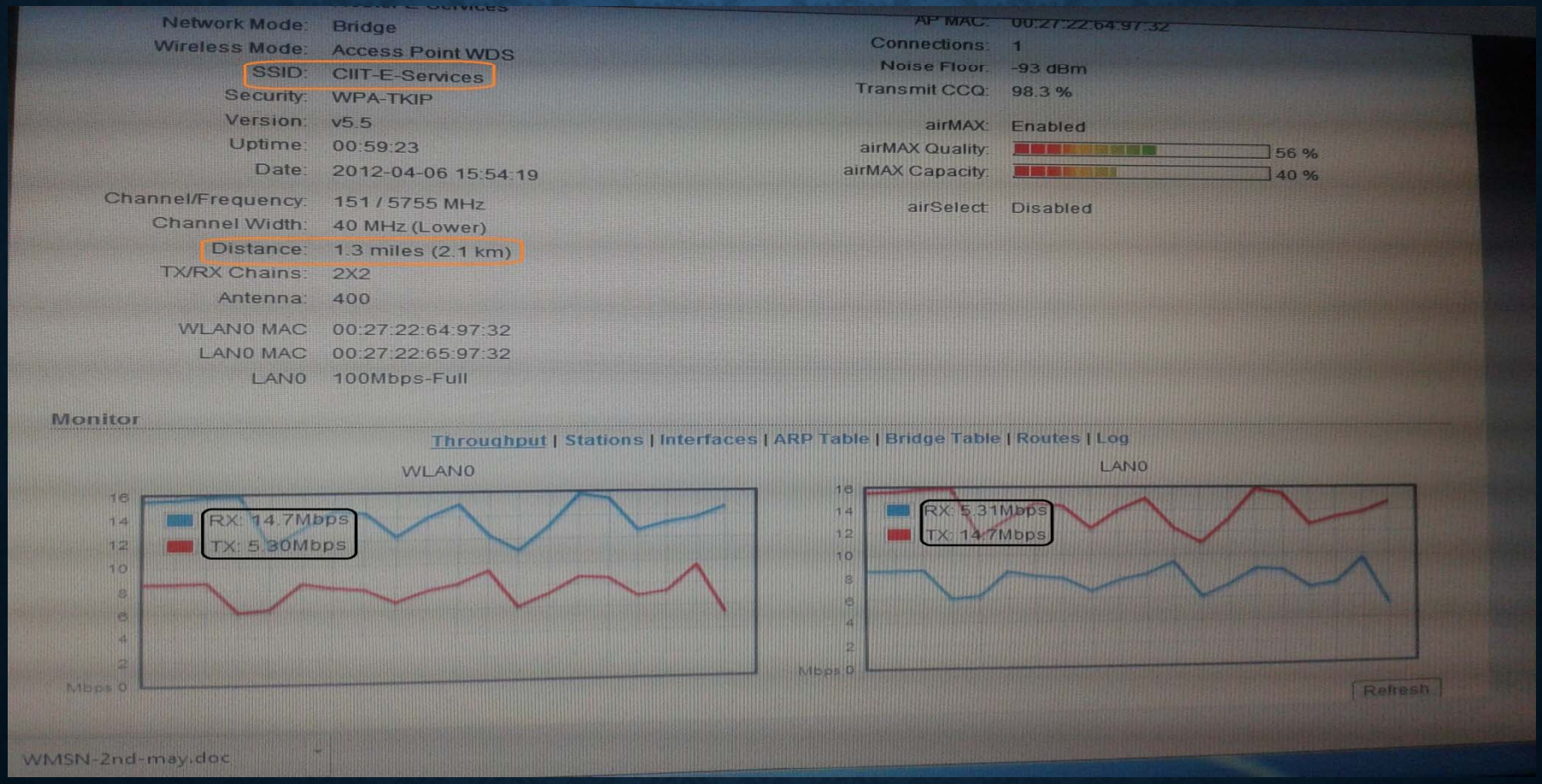


WiFi Conectivity
Enabling ICT Applications Using Long Distance Wi-Fi Networks

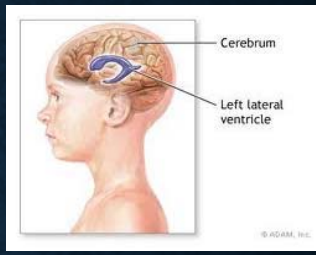
Progress

- Project titled "Utilizing long distance WiFi to enable ICT applications (e-health) for rural communities" has been submitted for funding of $10,000 to ISESCO-COMSTECH.
- Current prototype deployment is made by deploying the stations at an aerial distance of 2.2 Km. Next Phase is to increase the distance between the deployed stations up to 22 Km (maximum range of the equipment currently in use). For this purpose we have selected CIIT Vehari Campus. The campus is situated at an ideal location as it is surrounded by many (small villages) which lack basic education and health care facilities. Our idea is to use campus as a central hub for the provision of these services in the surroundings .

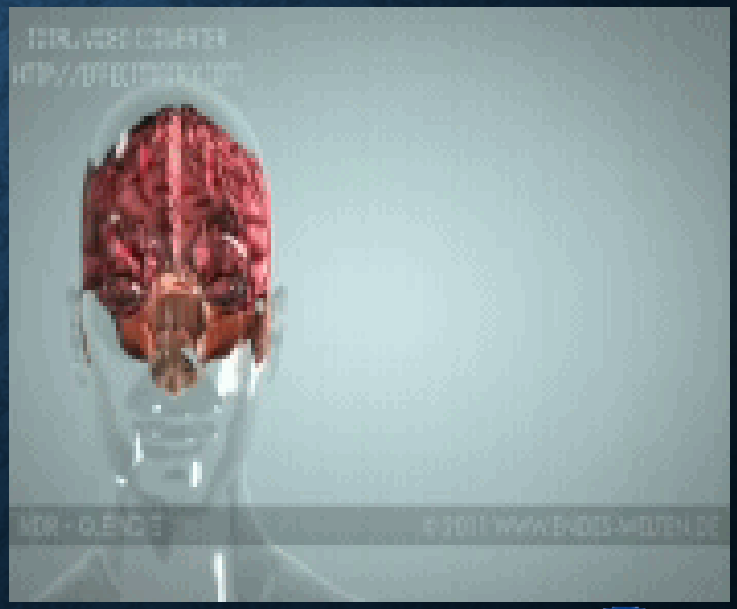
WiFi Conectivity
Enabling ICT Applications Using Long Distance Wi-Fi Networks



e-Health Solutions
3D Graphical Imagery Therapy For Healing Brain Tumors In Children



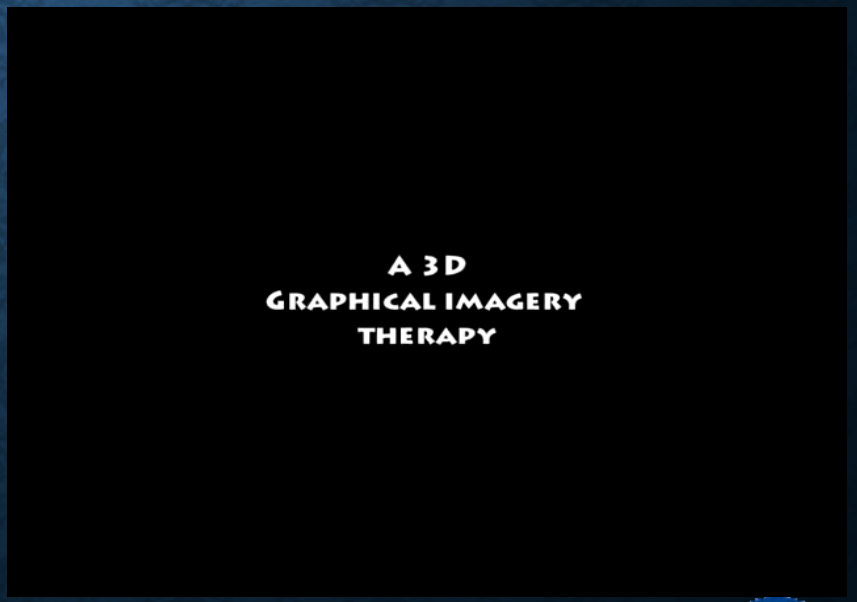
- **Idea:** Curing brain tumor in children by Image Therapy/Psychological Therapy through video games.
- Three dimensional animated graphical representation is a tool which can be used to facilitate the guided imagery sessions in children with brain tumors.
- 3D animated imagination in form of PC game 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.



e-Health Solutions
3D Graphical Imagery Therapy For Healing Brain Tumors In Children

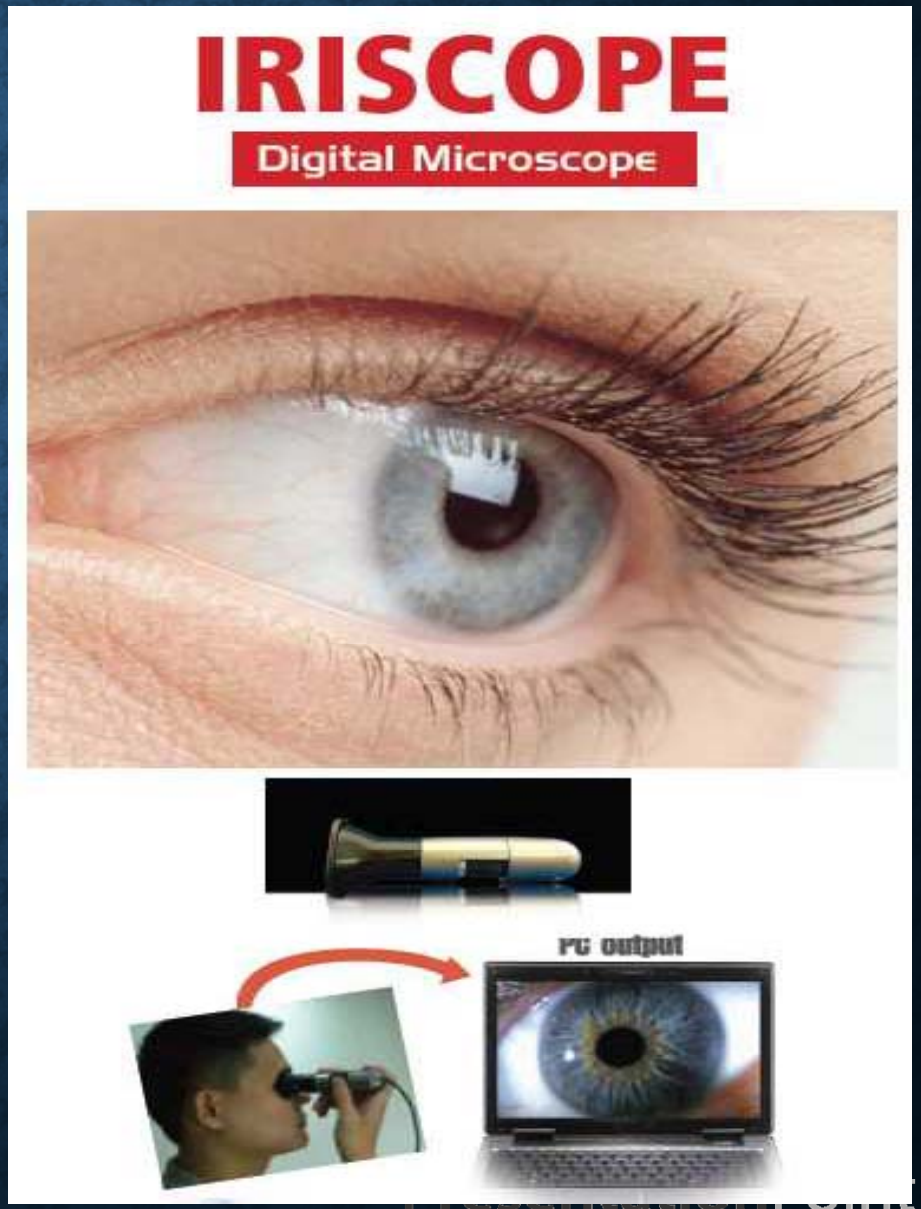
Progress

- The project is funded by ICT R&D Funds, Ministry of IT Government of PAKISTAN
- The final version of the game is near to completion till end of the May, 2013.



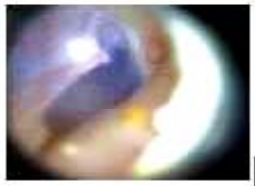
- This game will now be tested for its acceptability, improvement etc. in different Cancer Hospitals.
- Several countries has shown interest in this project.

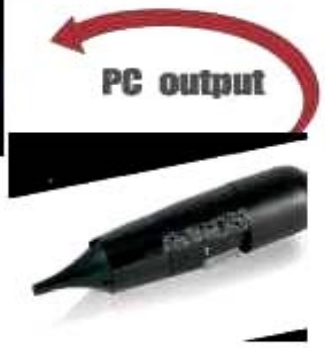
e-Health Solutions Contd.



OTOSCOPE

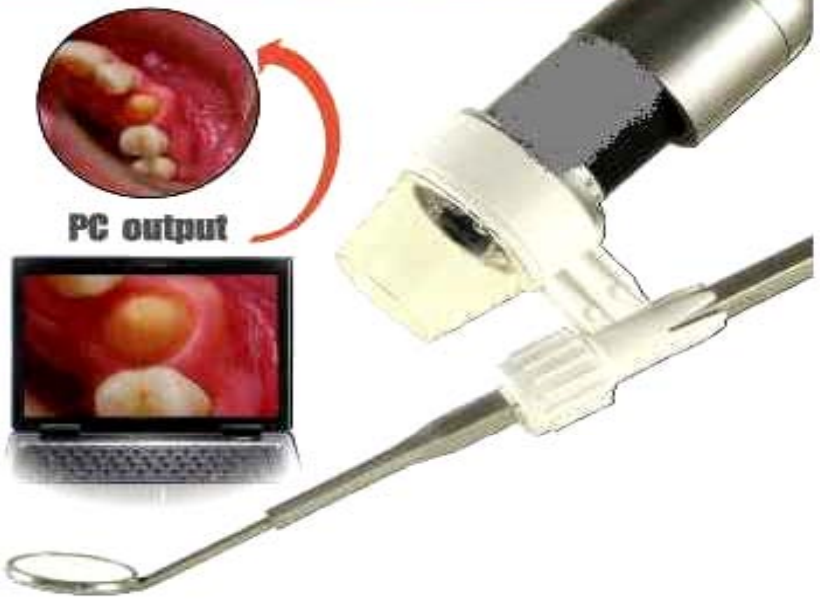
Digital Microscope



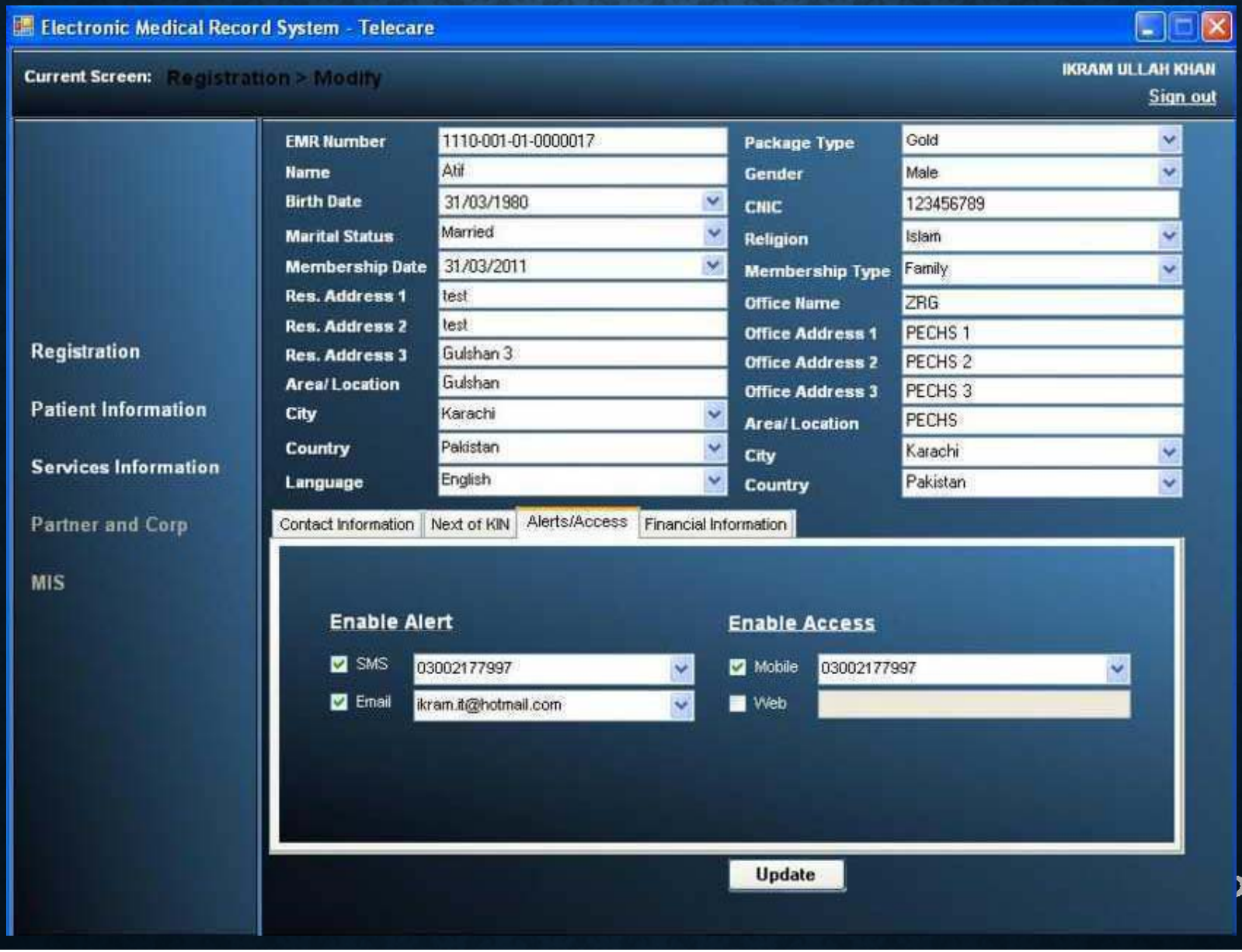


DENTISTSCOPE

Digital Microscope



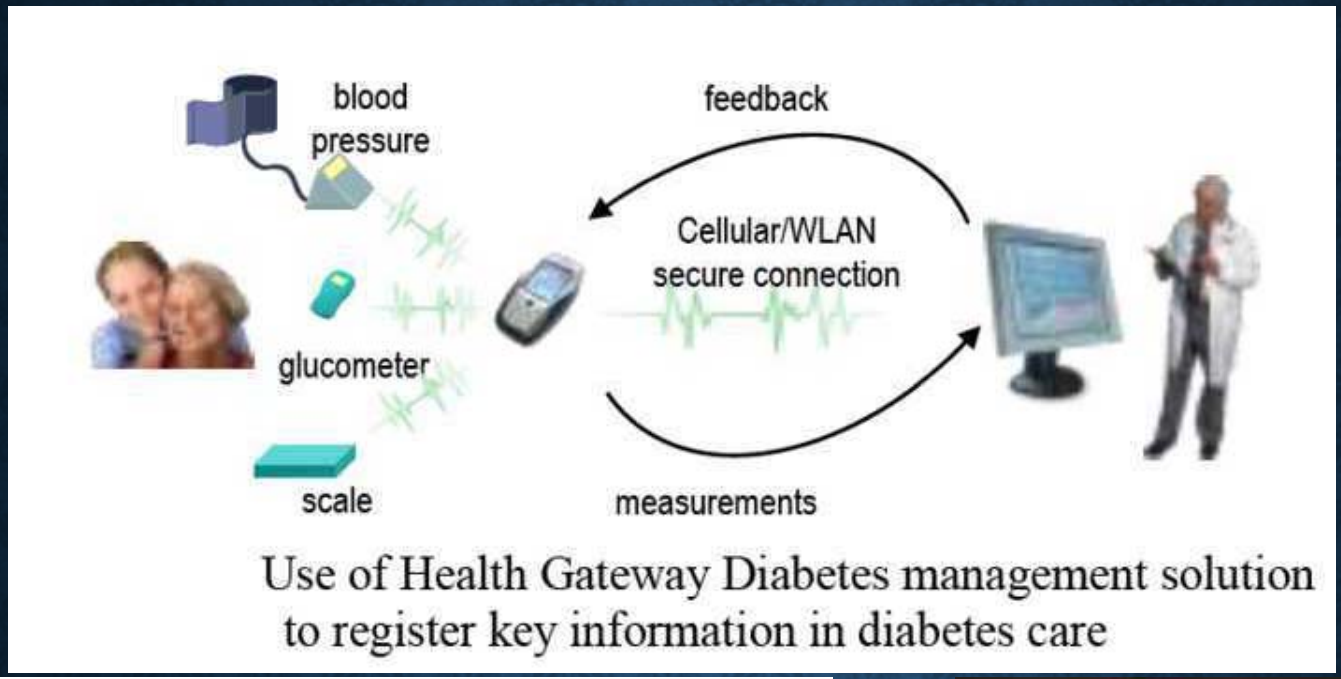
ELECTRONIC MEDICAL RECORD



PDA APPLICATION

LHW Application

Doctor's Application



Use of Health Gateway Diabetes management solution to register key information in diabetes care

e-Learning Solutions
Augmenting Traditional Learning by Using e-Learning

- **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	- video conferencing
-lecture efficacy monitoring	-online examinations
-Artificial Intelligence techniques	

e-Learning Solutions
Augmenting Traditional Learning by Using e-Learning

Progress

- Recently one of our faculty member has joined us after completing his PhD in e-Learning and he will spearhead this project.
- We have been in negotiation with few private entities and will jointly start this project with them.
- Options is open 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.

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

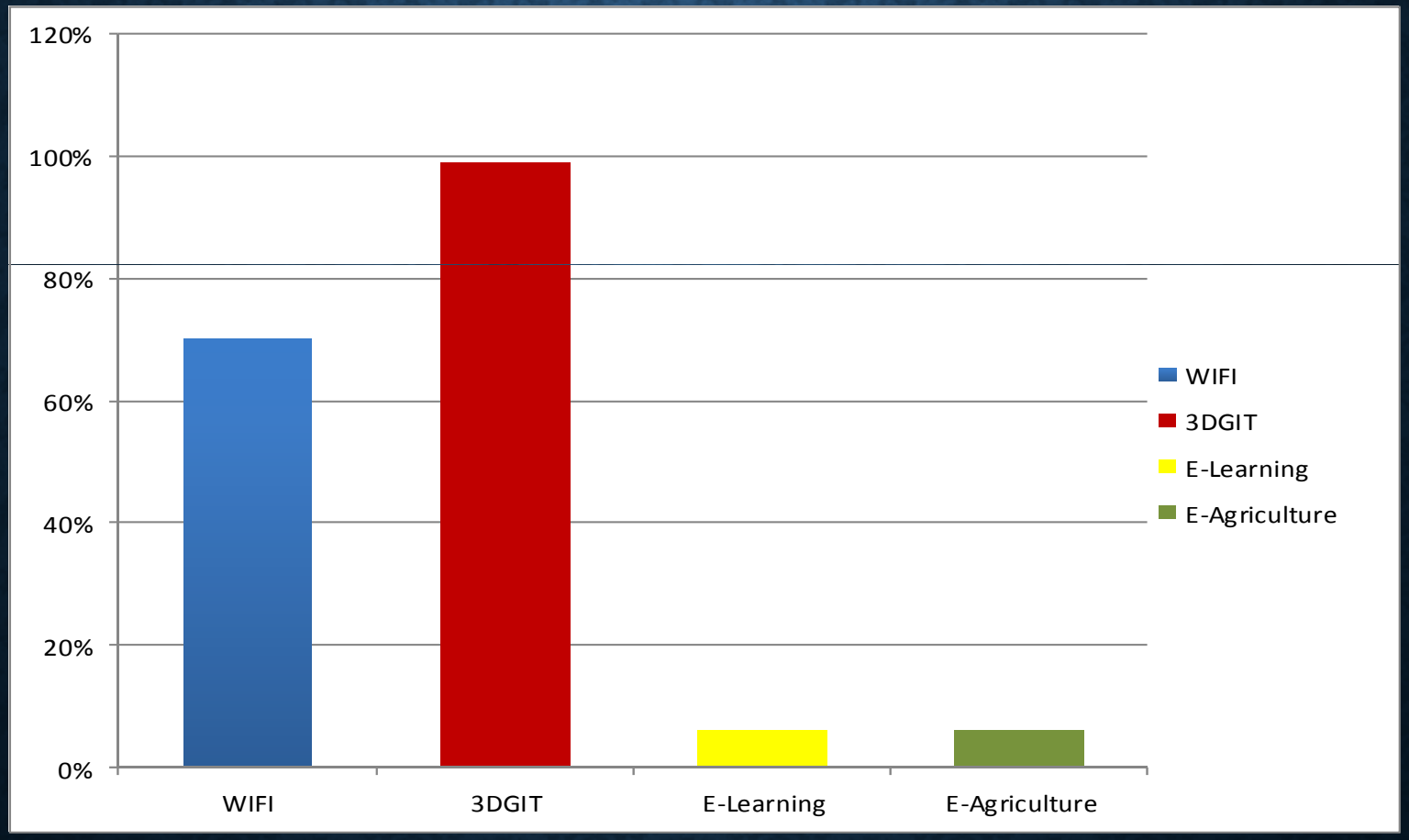
-cheaper costs

e-Agriculture Solutions
Precision Agriculture

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.

GRAPHICAL OVERVIEW OF PROJECTS



INTERNATIONAL CONFERENCE FRONTIERS OF INFORMATION TECHNOLOGY

- Every year it is held in December at Islamabad. In collaboration with IEEE & ACM.
- This year it will be held on 17th-19th December
- http://www.fit.edu.pk
- Researchers from COMSATS member countries are welcome to participate.

Thank You