



FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA AT A GLANCE

by

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Presentation Outline



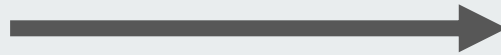
- Location
- History/Objectives
- Vision and Mission
- Our University
- Our Campuses
- Schools
- Departments and Centres
- Research and Development



Location



MINNA



Minna, Nigeria

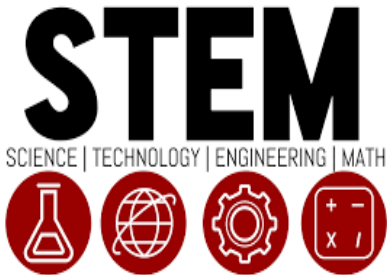
- Founded in 1910.
- A Railway Town.
- Population of about 420 thousand people.
- Largely Agrarian environment.



Federal University of Technology, Minna



- Public university.
- Established on 1st February, 1983.
- The objective: To give effect to the nation's drive for self-reliance in Science, Engineering and Technology.





Federal University of Technology, Minna



**A world class and Nigeria's leading University
recognized for its excellence in capacity
building and service delivery.**



Federal University of Technology, Minna



As a specialized University, we are committed to the training of skilled and innovative work-force that would transform Nigeria's natural resources into goods and services, driven by entrepreneurship and Information and Communication Technology (ICT) to positively affect the economy and thus quality of life of her people.



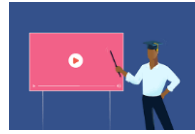
Our University

**Federal University of Technology (FUT),
Minna Nigeria**

www.futminna.edu.ng



2 Campuses



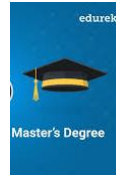
910 Academic Staff



45 Undergraduate Programmes



10 Schools



81 Masters Programmes



45 Departments



4054 Postgraduate Students



109 PhD Programmes



21,538 Undergraduate Students

Our Campuses

BOSSO CAMPUS

- Located within Minna town
- Hosts:
 - 3 Schools
 - Postgraduate School
 - 4 Centres including ACEMFS



GIDAN-KWANO CAMPUS

- Located 12 km from city centre
- Hosts:
 - 6 Schools
 - 6 Centres
 - Central Administration





Our Schools



Agriculture



Environment



Management





Engineering



Information and Communication Technology





**Physical
Sciences**



Graduate School



Life Sciences



Departments and Centres

Centres

Centre for Human and Urban Settlement

Centre for Disaster Risk and Management Studies

Centre for Open Distance & e-Learning

Entrepreneurship Centre

Information and Technology Services

**West African Science Service Centre on
Climate Change and Adapted Land Use**

Centre for Preliminary and Extra-Mural Studies



Departments

Telecommunication Engineering Computer Science

Biochemistry Microbiology

Transport Technology Physics Department

Agricultural Engineering Cyber Security Science

Computer Engineering Geography

Mechanical Engineering Soil Science

Information and Media Technology

Geology Urban and Regional Planning

Material Engineering Animal Science

Civil Engineering Mechatronics Engineering

Building Engineering Chemical Engineering



Research and Development

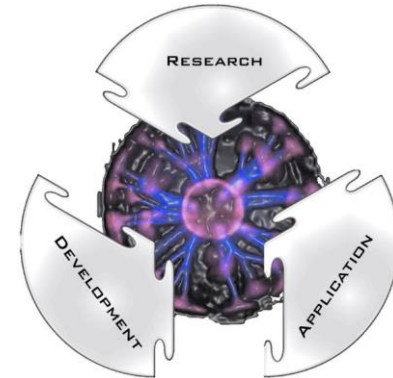
Major Research and Development Achievements of FUT Minna

- **NUC institutional Accreditation- One of Two Universities to with A+ rating out of over 114 universities in Nigeria.**
- **The only University with 5 Star rating in Service Compact with All Nigerians (SERVICOM).**
- **Overall best university in R&D as judged by NURESDEF in 2012.**
- **\$4 million World Bank grant for the National Centre for Genetic Engineering and Biotechnology under the STEP-B.**
- **German Government grant of 1.05 million Euro for West Africa Science Service Centre on Climate Change and Adopted Land Use.**



Major Research and Development Achievements of FUT Minna

- **The only institution that won all the three research grants awarded by Nigerian Communications Commission (NCC) in 2015**
- **Centre for Disaster Risk Management and Development Studies winning the Tulane University of USA grant of \$185, 000 in 2014**
- **1ST among specialized Universities in the country (2019)**
- **In 2019, the universities won \$6 million World Bank grant for the establishment of African Centre of Excellence for Mycotoxin and Food Safety (ACEMFS).**
- **In 2020, Won Royal Academy of Engineering (RAENG) Grants for the establishment of “Artificial Intelligence for Clean Energy”**



Our Role at FUT Minna

FUT Minna has been contributing in the following ways:

Sector	Our Role and Efforts
Regional Food Safety	Africa Centre of Excellence on Mycotoxin and Food Safety
Land Use and Climate Change	West African Science Service Centre on Climate Change and Adapted Land Use (WASCAL)
Borderless Education	Centre for Open Distance & e-Learning (CODEL)
Peace and Security	Defence Industrial Complex
4th Revolution	Information and Communication Technology Industry
Skill Development for Economic Transformation	AcadoPreneurship: Skilled Work force and Business Incubation



Association of
African Universities

Association des universités africaines
ذى كى كرف أأنا تاج مازالنا قطبار

Africa Centre of Excellence in Mycotoxin and Food Safety



WORLD BANK GROUP



www.acemfs.futminna.edu.ng



AFD
AGENCE FRANÇAISE
DE DÉVELOPPEMENT

Focus of ACEMFS

- A \$6 million world bank project which has 46 industry/sectoral and academic partners.
- We intend building research capacity via short and long training programmes.
- We shall establish an integrated prevention and control scheme against **mycotoxins, food borne pathogens, veterinary drugs, pesticides, and industrial residues.**
- The staples to be studied include **maize, rice, sorghum, millet, wheat, soybean, cassava, sesame, groundnut, animal feed, livestock products including milk, egg and fish, fruits and vegetables** in Central and West Africa.



Education, Teaching, and Learning

Short Term Courses for Industry and Government food Regulators

1. ICT Application on Food Safety
2. Application of Innovative Technologies for Reduction of Contaminants in Foods
3. Food risk analysis
4. Microbiological and chemical laboratory testing methods
5. Good agricultural and manufacturing practices
6. Good aquaculture practices
7. Food inspection training
8. Commercial sterile packaging training
9. Pest and Insecticide Management
10. Food regulations: policy and management
11. Economic impact of mycotoxins on food and feed industry and mitigation strategies
12. From sampling to analytical tools: state-of-the-art in mycotoxin determination
13. Exposure assessment of mycotoxins





West African Science Service Centre on Climate Change and Adapted Land Use (WASCAL)

WASCAL



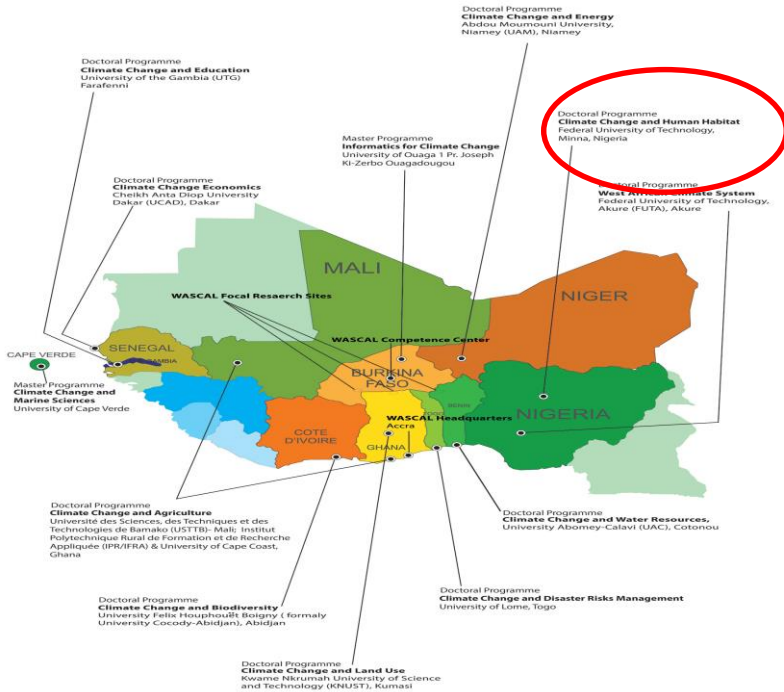
❑ With climate change being one of the most severe challenges to Africa in the 21st century, West Africa is facing an urgent need to develop effective adaptation and mitigation measures.



❑ WASCAL has a strong commitment to help educate the next generation of scientists to attain an in- depth knowledge of different climate related issues in order to help the region develop suitable management strategies.



Programmes and Courses offered at WASCAL



A

● Short term training

B

● Post-Graduate Diploma

C

● Master's Degree

D

● PhD Degree



Contribution to Defence Industry



R&D In the Defence



- ❑ FUTMinna has been collaborating with the Defence institutions in the country to bring peace and stability to the country and the region at large.
- ❑ The university has also participated in a number of projects to help the defence institutions combat Insecurity and Terrorism.



NAF EQUIPMENT & PERSONNEL TRACKING SYSTEM

The system presented is an enhanced means of tracking the location and movement of equipment and personnel by the Nigerian Air Force. With proper monitoring of equipment, processes will be organized, costs will be saved, operations will be enhanced, and security will be guaranteed. This achieved via an electronic design that utilizes the principle of: GPS, GSM, GSM, microcontroller programming, database design, Graphical User Interface, Design, & Software interfacing.

Device Features

- ✓ Monitors NAF equipment from any part of the world.
- ✓ Portable device that can be easily mounted on equipment.
- ✓ Tracks personnel assigned to equipment.
- ✓ Robust and efficient database design.
- ✓ Enhanced graphical display on PC.
- ✓ Easy report generation and display.

For further information, contact:
 The Inventor,
 School of Information and Communication Technology (SICT),
 Federal University of Technology Minna
www.futminna.edu.ng



AS-1 INTERVALOMETER

This work involves the design and fabrication of a microcontroller based intervalometer (AS-1) fabricated with advanced functionalities and a very quick programmable interface for its testing and re-programming after usage. AS-1 offers some size, color, pin-out, function and look with the existing MATRA type from outside, but inside features a huge array of enhancements across the board, many of which surpass the existing MATRA intervalometer. It is intended to become the new lightest intervalometer of choice for NAF Operation.

PROGRAMMABLE INTERVALOMETER

- Microcontroller Unit
- Digital Display Unit
- Select Switch (1, 2, 3, 4, 5, 6, 7, 8)
- Interface Control Dial

- ✓ Program controlled timing intervals
- ✓ Programmable and Adaptable for all Missile Launching
- ✓ Compact with state of the art facilities

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COMPUTERIZED MOBILE ROCKET POD TESTING SYSTEM (CMRPTS)

The computerized Mobile Rocket Pod Testing System (CMRPTS) is a high-mobility automatic system for testing Missile Assembly and Intervalometer based on Matra R platform. CMRPTS can be used for ground testing or Alpha-test firing testing without disassembling.

CMRPTS can test a whole missile assembly evaluating its capability and functionality of each rocket or bomb pod within 10 seconds. The testing, which is mounted on a mobile cart is a highly automated self-testing, self-reporting and self-diagnostic system. It contains an embedded system linked with a central computer that integrates the intervalometer and rocket-testing system.

CMRPTS can be used for individual or in riples of 1 to 18 testing. Accuracy is maintained in all testing modes because the computer re-starts the testing sequence at every mode.

The CMRPTS can be easily transported to the area of operations by pushing or using any transporter system.

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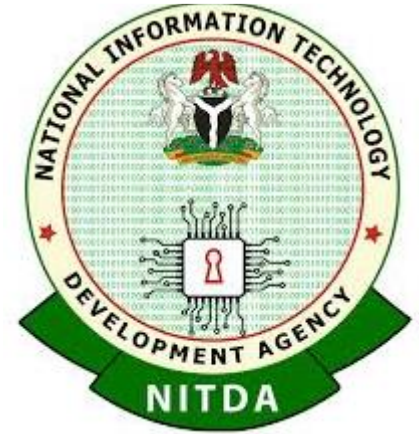
R&D In the Defence



**OUR TEAM
WORKING ON
OERLIKON 35
MM TWIN
BARREL ANTI-
AIRCRAFT GUN**

SEQUEL TO FEDERAL UNIVERSITY OF TECHNOLOGY (FUT) MINNA PARTICIPATION AT TRADOC RESEARCH EXHIBITION HELD AT TRADOC MINNA ON 8 – 10 DECEMBER, 2014, THE COMMANDING OFFICER, 313 ARTILLERY UNIT, FUT MINNA TO CONDUCT PRELIMINARY ASSESSMENT ON THE SERVICABILITY OF ONE FAULTY OERLIKON 35 MM TWIN BARREL ANTI-AIRCRAFT GUN AS A TEST CASE FOR POSSIBLE REPAIR OF ALL OTHER GUNS.

4th Revolution: Contribution to Information and Communication Industry



❑ FUTMinna has over the years played a leading role in the communication industry through innovative and creative Research.

❑ 2018

❑ Development of an Intelligent Wireless Mobile Phone Charger, funded by Nigerian Communications Commission (NCC),

❑ 2016

❑ Fabrication of GSM Communication Based Walking Cane Robot (GWCR) for Enhancing Ambulation, funded by NCC

❑ 2015

❑ Design and Development of Low Cost Adaptive GSM Signal Booster

❑ Seamless Data and Voice Connection Using Multiple Operators Enabled SIM

❑ Fabrication and Production of GSM Battery

R&D In the Communication Industry



❑ FUTMinna has over the years played a leading role in the communication industry through innovative and creative Research.

❑ 2018

❑ **Intelligent Wireless Mobile Phone Charger**, funded by Nigerian Communications Commission (NCC)

The mobility requirement of existing wire based charging systems.

Thus, making mobile phone stay in a particular place for long.

Thus, the motivation for this project is to improve the capacity of MP users to freely move around while charging their phones.



Problem Statement

Existing Approach

Proposed Solution Approach

□ 2016

□ Intelligent Walking Stick

One of the major reasons identified for increase in number of falls by the aged, senior citizens and people with disability is use of MOBILE Phone.

Imbalance sometimes do arise in an attempt to:

- receive call,
 - initiate phone call,
 - send or read SMS
- while holding onto the walking stick during a call session.

We present a novel solution to solve this problem : **The Mobile Communication Enabled Walking Stick (MCEWS)**



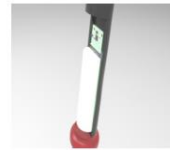
Electronic section of IWS

+



Seamless Mechanical joint

+



Fall detection Algorithm

+



The angular system with Loudspeaker

+



IWS flash light

=



IWS at rest



IWS in use

- ❖ Mobile Communication Enabled system
- ❖ Fall detection algorithm
- ❖ Obstacle detection system
- ❖ Phone call initiation to predefined care-givers or health centres
- ❖ Real time transmission of vital signals to remote health workers
- ❖ Flash light
- ❖ Bluetooth
- ❖ Battery charging system

R&D In the Communication Industry



❑ 2015

- ❑ Design and Development of Low Cost Adaptive GSM Signal Booster, funded by Nigerian Communications Commission (NCC), =N=3,100,000
- ❑ **Seamless Data and Voice Connection Using Multiple Operators Enabled SIM (MOES) card, funded by Nigerian Communications Commission (NCC), =N=2,961,561.15**
- ❑ Fabrication and Production of GSM Battery, funded by Nigerian Communications Commission (NCC), =N=2,700,000

Call failure, call , POOR QUALITY OF SERVICE and low received signal strength are prominent problems associated with MOBILE CELLULAR calls in Nigeria.

The use of more than **one cell phones or phones with more than one subscriber Identity Module (SIM) cards BY THE SUBSCRIBERS** has not been able to solve the aforementioned problems.

Hence, the proposition of the **Multiple Operators Enabled SIM (MOES)**

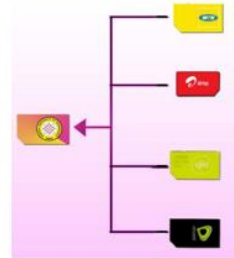


Figure 1: SUPER SIM MOES



Figure 2: Embedded MOES (E-MOES), Nx1 Method

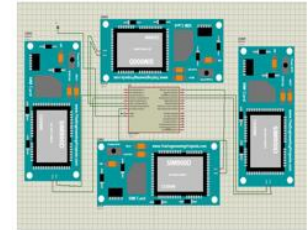


Figure 3: Embedded MOES (E-MOES), NxN Method

THANK

YOU