

Academic and Community Networks in Nigeria

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Collaborators

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Importance of the Project

Introduction

- Nigeria has the highest out of school population in the World – 60% based in rural Northern Nigerian out which 60% are girls.
- Investment in good and equal opportunity education is vital for national development and well-being.
- Innovative online learning solutions would enhance youth education in the rural communities and also among the girl child.

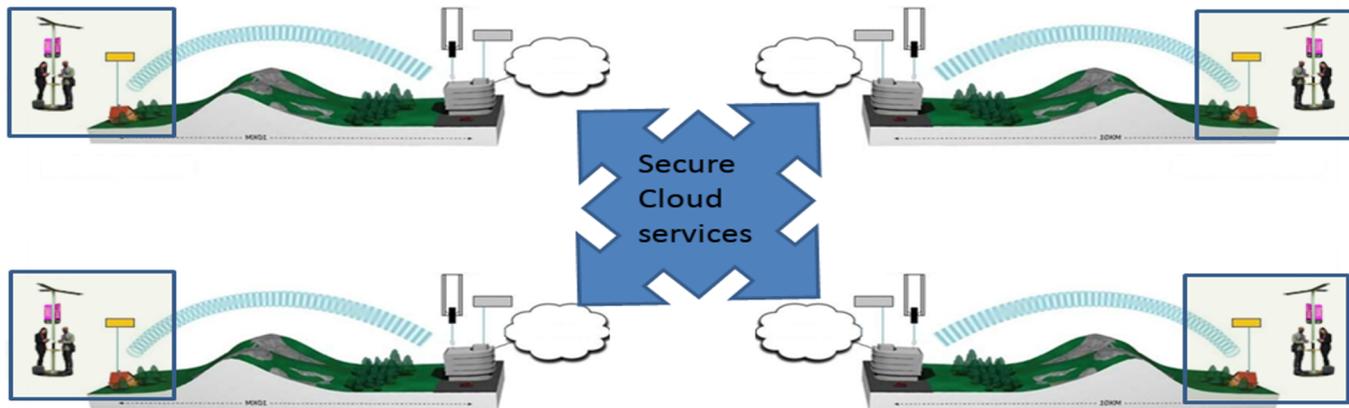
Scope & Impact

- The focus of the research is to:
 - Engage and provide access to quality online education to high school graduates and out of school youth .
 - Improve host communities educational and economic status by facilitating their access to suitable quality educational resources through technology.
 - Provide customized online basic math training for the girl-child especially in the rural areas and children. In the long run it also improves on STEM participation which is low

The Project Deployment

Project Model

Secure Cloud for Academic and Community Networks



LEGEND

-  Academic institution
-  TV White Space Transmitter & Antenna
-  **Local Cloud resources**
(LMS, e-Library, Apps, etc)

At a Community

-  TV White Space Receiver with uplink access point
-  Solar powered sCACN hotspot(s)
(Wi-Fi repeaters, IoT gateways, etc)

Each institution supports multiple academic networks and community networks

Services Deployed

- Remedial Studies
- Library Services
- Lectures
- Interactive Mathematics and English App(s) for Children and Cooking recipes for girls

Proof of Concept

Proof of Concept

- The proposed deployment on the cloud infrastructure of the ICTP provided access to online courses and materials via a computer or electronic device with Internet access to some undergraduate students across two institutions (PLASU / UJ) across two different courses (CS & Mass Comm)
- Using Moodle, learning materials and educational resources for teaching and learning were deployed for access
- Customised applications that would teach girls mathematics through cooking recipes has been developed though still work continues to include more recipes and the children appropriate recipes.

Findings from PoC

- The female students seem to participate better than the male students
- On-line interactions, class forums, discussions seem to be improved and quite engaging thanks to motivating presence of tutor(s).
- Learners used the virtual lecture-room was also used for pre and post class activities (tutorials & social interactions) .

ScreenShot (1)

Zoom Meeting

The screenshot shows a Zoom meeting grid with 16 participants. The participants are arranged in a 4x4 grid. The names of the participants are: Mary-Jane Sule, Nanret sana, Dorathy Hommi, Naantap Kumtong, ljah Jonathan, Cynthia Mancha, Nendirmwa songkat, and Timcit Ishaya. The participant Naantap Kumtong is highlighted with a yellow border. The chat window on the right shows a message from Pwasollam Yiri to Me: (Privately) Thank you. The chat window also shows a message from Me to Everyone: <https://poc.scacn.ictp.it/>.

Chat

From Me to Everyone:
<https://poc.scacn.ictp.it/>

From Pwasollam Yiri to Me:
(Privately)
Thank you

To: Pwasollam... (Privately) ...

Type message here...

ScreenShot (2)

The screenshot shows a Zoom meeting interface. At the top, a green bar indicates 'You are viewing ANDREW DEWAN's screen' and 'View Options'. The main content is a slide titled 'DEFENCES FOR SEDITION' in yellow text. The slide text reads: 'As contained in Section 50 (2) (i-iv) of the Criminal Code, a speech or publication will not be regarded or amount to Sedition if it intends to:' followed by four bullet points. The right sidebar shows a list of participants: Olu Dinchi, Mary-Jane Sule, ANDREW DEWAN (highlighted with a yellow border), Naantap Kumtong, and Naanpen Charles sabo. The bottom toolbar includes icons for Mute, Start Video, Participants (20), Chat, Share Screen, Record, Reactions, and a red 'Leave' button.

You are viewing ANDREW DEWAN's screen View Options Speaker View

DEFENCES FOR SEDITION

As contained in Section 50 (2) (i-iv) of the Criminal Code, a speech or publication will not be regarded or amount to Sedition if it intends to:

- Show that the President or Governor was misled or mistaken in any measure in the Federation or States as the case may be.
- To point out errors or defects in the government or Constitution of Nigeria or of any region as by law established or in legislation or in the administration of justice with a view to remedying such errors.
- To persuade the citizens to procure by lawful means the alteration of any matter in Nigeria as by law established (mobilisation of citizens to come to vote a government out).
- To point out with a view to removing any matter which is producing or having the tendency to procure feeling of ill-will and enmity between and among different classes of people or the population of Nigeria (state of origin, tribe, etc).

Olu Dinchi

Mary-Jane Sule

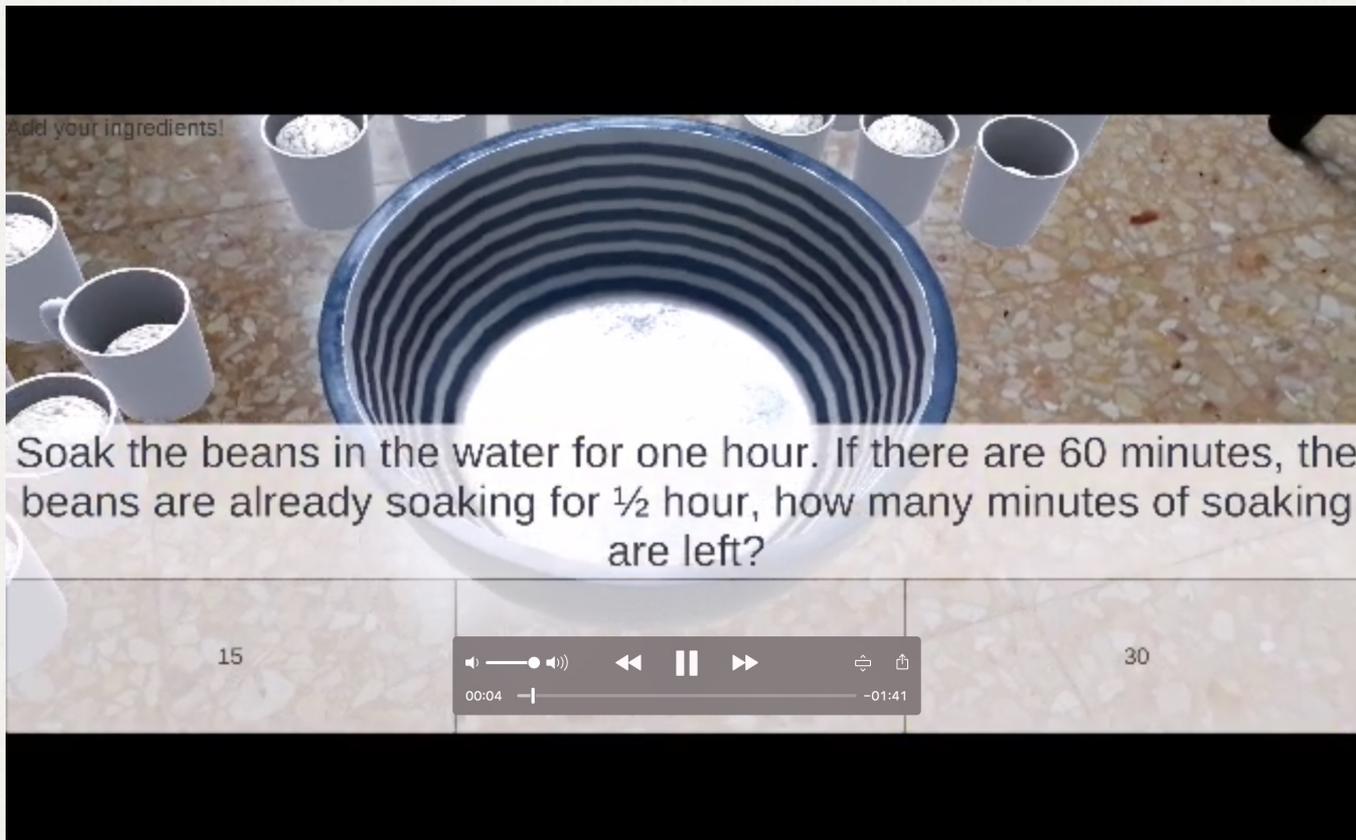
ANDREW DEWAN

Naantap Kumtong

Naanpen Charles sabo

Mute Start Video Participants 20 Chat Share Screen Record Reactions Leave

ScreenShot (3)



add your ingredients!

Soak the beans in the water for one hour. If there are 60 minutes, the beans are already soaking for $\frac{1}{2}$ hour, how many minutes of soaking are left?

15 30

00:04 -01:41

The screenshot shows a video player interface. The video content displays a kitchen scene with a large blue and white striped bowl in the center, surrounded by several white measuring cups on a light-colored tiled floor. A text overlay in the center of the video asks a math question: "Soak the beans in the water for one hour. If there are 60 minutes, the beans are already soaking for 1/2 hour, how many minutes of soaking are left?". The video player controls at the bottom include a progress bar with a play/pause button, a volume icon, and a share icon. The current time is 00:04 and the total duration is 01:41. The video is currently playing at the 15-second mark, with a 30-second mark also visible.

ScreenShot (4)



ScreenShot (5)



Challenges

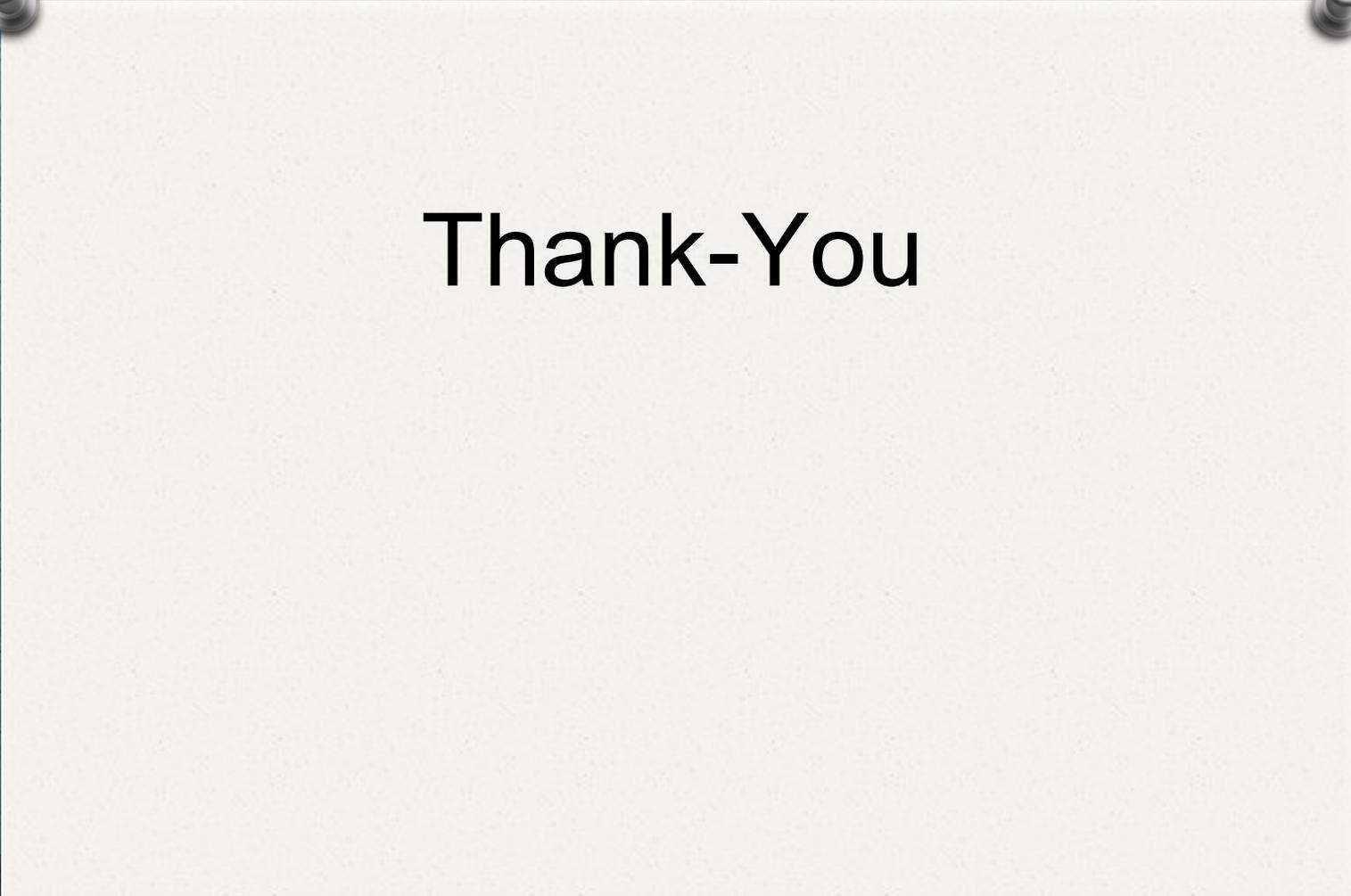
- Even though this deployment stands to benefit the community, government and the individuals economically and socially, like any other ICT deployment in Nigeria, there are challenges that may hinder its sustainability –
 - Funds
 - Unreliable Power Supply
 - Human Resources / Local Technical Incompetencies

Sustainable Solutions for Identified Challenges

Identified Challenges	Sustainable Techniques
Lack of reliable Internet connectivity in DCCSS	<p>Deployment of TVWS technology</p> <p>CSR agreements with mobile providers</p>
<p>Lack of electricity in the community like Dungung Community Comprehensive Secondary School (DCCSS)</p> <p>Lack of reliable power supply in the Nigerian Universities / Institutions</p>	<p>Installation of solar panels with batteries and inverters to serve ICT equipment in the community school and the University</p> <p>Installation of diesel generator to power the community school computer labs</p> <p>Deployment of solar units to power teaching aids: Laptop, USB webcam/cameras, room/class speakers, individual bluetooth mics, interactive white boards, etc</p>
Lack of requisite skills to manage computer labs and network in DCCSS	<p>Organise basic maintenance training for persons responsible for managing the computer labs and network</p> <p>Create training videos on maintenance and troubleshooting to serve as reference and learning materials</p> <p>Deployed Secure cloud managed and hosted at the University</p>

Conclusion

- The project uses ICT facilities to improve education and hence socio-economic development in the host communities.
- The females and young children develop basic skills in core educational material through age appropriate lessons delivered using an app that also teaches skills in cooking of local meals.
- The nation thereby meets its SDG goals which includes training of out-of-school adolescents and youths as well as training of young children and the girl child.



Thank-You