



REIINN


Resilient Education Information Infrastructure
for the New Normal

Global Access to the Internet for All (GAIA) IRTF WG
IETF 119 Brisbane

March 19, 2024



 @DOSTASTI

 info@asti.dost.gov.ph

 www.asti.dost.gov.ph



About DOST-ASTI

Our Mandate

The Advanced Science and Technology Institute (ASTI) is a **research and development institute** of the Department of Science and Technology mandated to **undertake R&D activities aimed at strengthening and modernizing science and technology infrastructure in the advanced fields of Information and Communication Technology and electronics.**



Scientific research and development in the advanced fields of Information and Communication Technology and Microelectronics.



Undertake long-term researches to strengthen and modernize science and technology infrastructure



Complement the overall endeavor in the scientific field with intensive activities in the computer and information technologies

DOST-ASTI has been at the forefront of local R&D initiatives as a technology enabler.





Overview

- Project Context
- Deployment Updates
- Moving Forward





Project Context

Project REIINN

- Use of 4G LTE to deliver internet service
- On-premises, cached content to optimize usage of internet
- ISDB-T Datacasting as non-internet based content delivery option
- Core technology could be used beyond education content delivery (ex. Disaster Risk Reduction)



REIINN

Resilient Education Information Infrastructure
for the New Normal

<https://asti.dost.gov.ph/projects/reiinn/>

PROJECT REIINN COMPONENTS

LOKALTE

BUMUBUO AT NAGTATAYO NG MGA LTE NETWORKS SA MGA KOMUNIDAD SA KANAYUNAN.

REIINN?

[ProjectREIINN@asti.dost.gov.ph](https://asti.dost.gov.ph/projects/reiinn/)

DOST-ASTI REIINN

SCIENCE FOR THE PEOPLE

e-Learning ng walang internet access, posible na!

Sa **RuralCasting** ng Project REIINN, maaari nang mag-transmit ng educational videos at quizzes ang teachers patungo sa kanilang students gamit ang digital TV boxes.

<https://asti.dost.gov.ph/projects/reiinn/>

[@ProjectREIINN](https://twitter.com/ProjectREIINN)

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Technology Pivot

Project REIINN

- **Public Demonstration of 600 MHz LTE on-hold:** Shifted to WiFi



Kilalanin ang LokalFi!

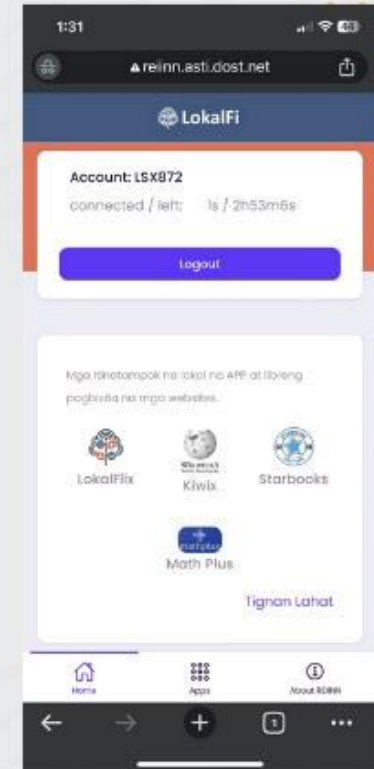
Safe Internet at on-premise apps para sa lahat, posible sa LokalFi!

Content Server



Tower

Captive Portal



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Technology Pivot

Project REIINN

- **Public Demonstration of ISDB-T Datacasting on-hold:** Focused on offline LMS and e-library



Kilalanin ang **RuralCasting (RCast)**!

E-Learning kahit walang internet, posible sa RCast Box at RCast Lite!



RCast Box



RCast Lite



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LOKALTE



LokaLTE develops and deploys local LTE and WiFi networks in unserved areas.

LokaLTE Technologies



LokaLTE Network

A small-scale, low-cost, and community-operated cellular network developed and deployed to provide 4G LTE connectivity in remote areas.



LokaFi

A low-cost, long-range WiFi network deployed to provide alternative internet access to target schools.



LokaFlix

A LokaLTE web page where students can watch educational videos; contents are locally-cached in the LokaLTE system.



RURALCASTING

RuralCasting Technologies



Set Top Box

A digital TV box that is able to tune and receive broadcasts whilst providing accessible educational content.



EdukasTV

A learning management system (LMS) that teacher and students can use for the delivery of lessons, quizzes, grades, etc.

RuralCasting utilizes digital TV channels to help deliver educational materials to teachers and students in far-flung areas.



SCIENCE FOR THE PEOPLE

Classroom Demo of LokaFlix YABBI ELEMENTARY SCHOOL

07 September 2023
Brgy. Yabbi, Dupax del Norte, Nueva Vizcaya





On-Premises Apps and Services



LokalFlix
A collection of educational videos from the Department of Education and Central Bank of the Philippines

Gateway to offline Wikipedia

Kiwix

Mathplus
Developed by Ateneo de Manila University, Mathlus offers a variety of interactive math games

STARBOOKS
Developed by DOST-SEI, STARBOOKS offers hundreds of thousands of digital resources in different formats, like text, video, and audio

STARBOOKS

National Museum
360 Virtual Tour of the Philippine Museums

National Museum

TESDA
Online Program's digital resources (ongoing review of MOA)

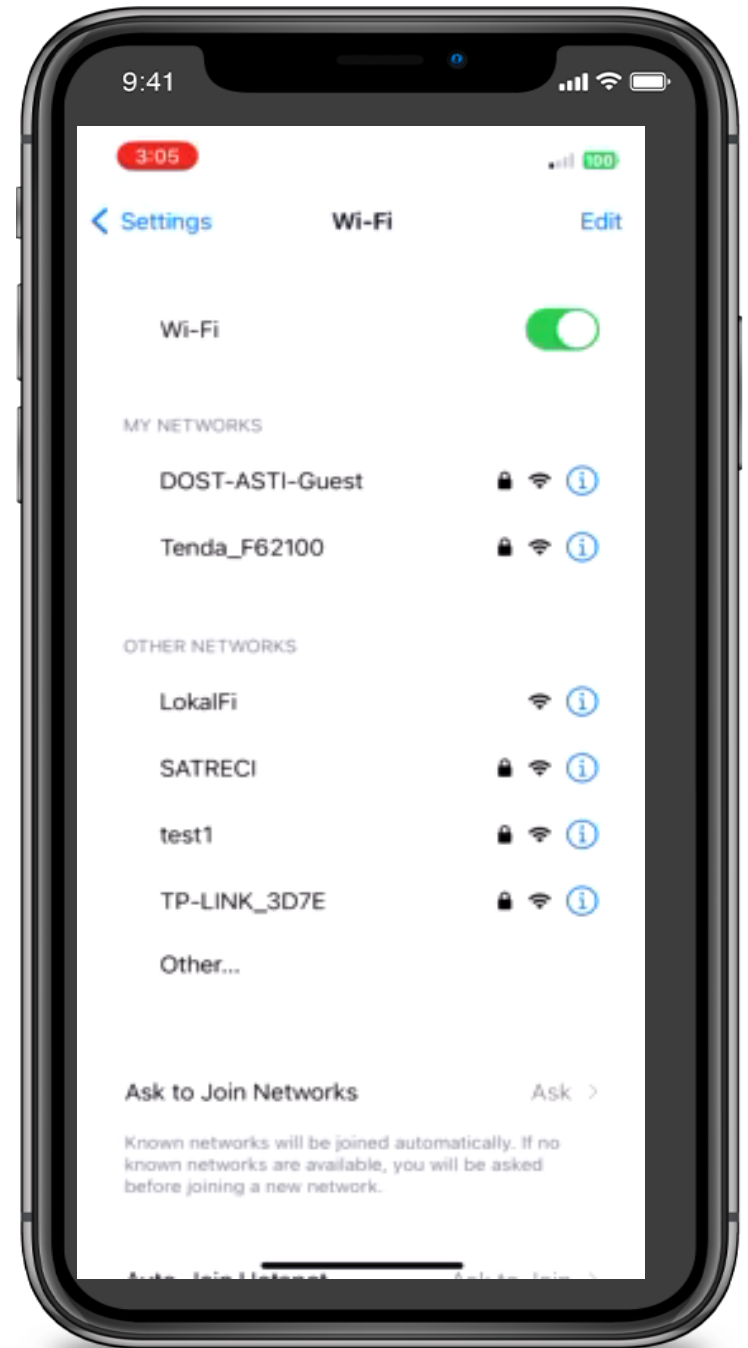
TESDA



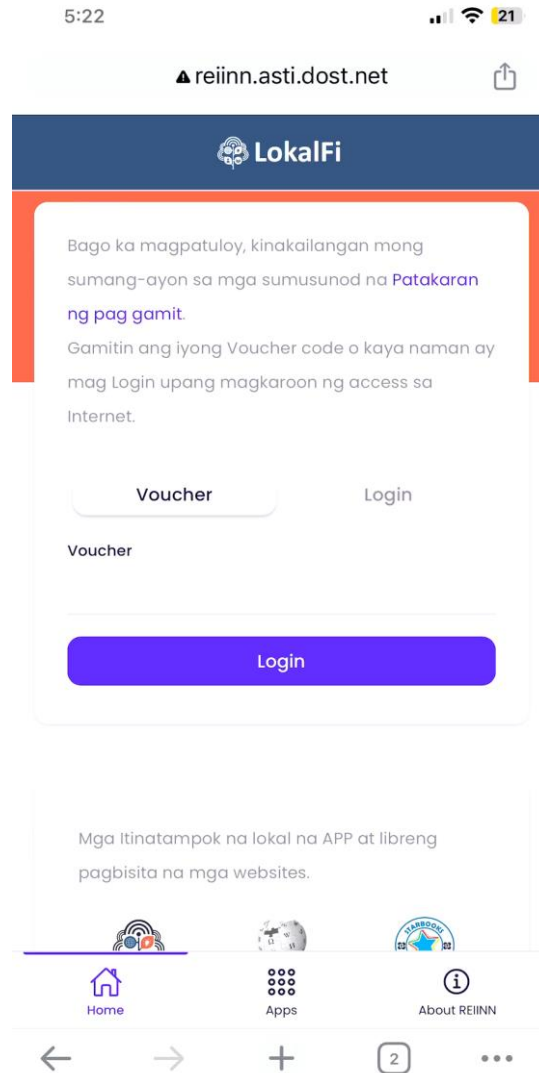
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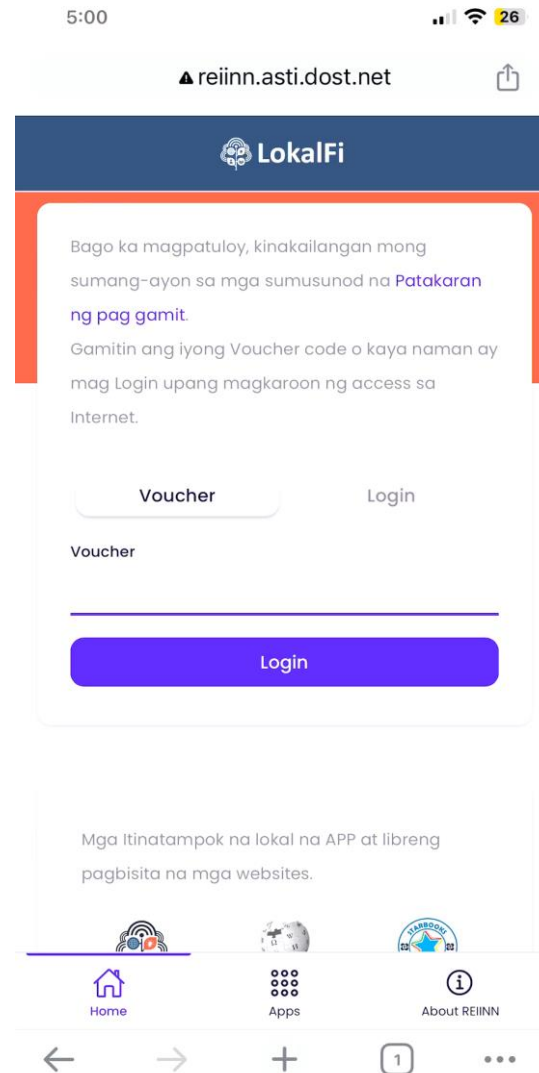
DEMO



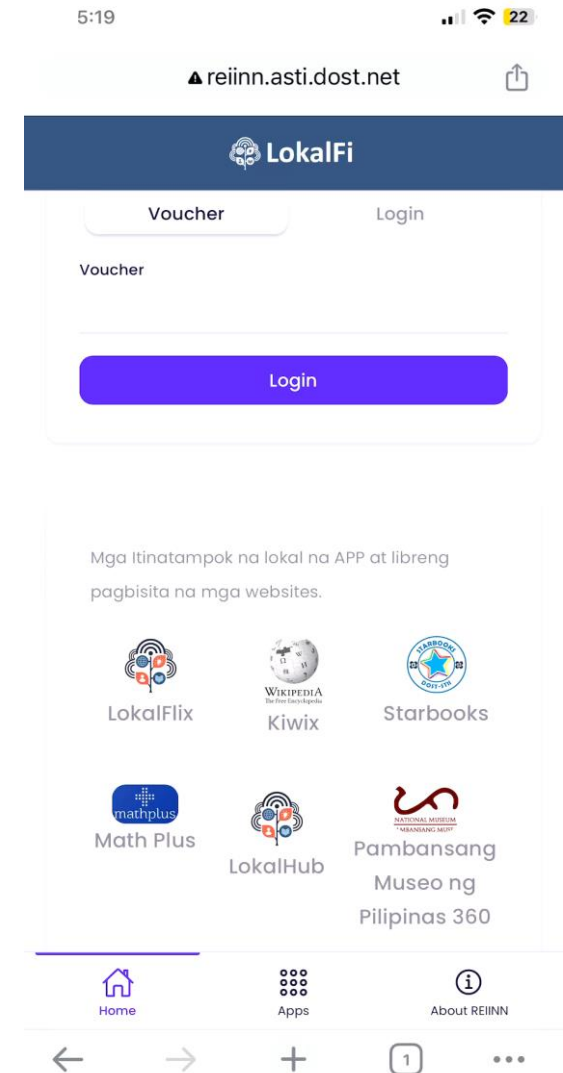
Navigating LokalFi



National Museum



LokalFlix



Starbooks



REIINN's Pilot Nine

9 Sites across 5 Regions in Luzon

SITES



Arcadio F. Deato Elementary School
Valenzuela City



Bagong Silangan High School
Quezon City



Bokod National High School
Bokod Benguet



Looc Elementary School
Castillejos Zambales



Madilay-dilay Elementary School
Tanay Rizal



Naguey Elementary School
Atok Benguet



San Andres Elementary School
Tanay Rizal



Sitio Bakal
Quezon City



Yabbi Elementary School
Dupax del Norte, Nueva Vizcaya



Saan nga ba may Project REIINN?

Data as of 08 September 2023

Legend:

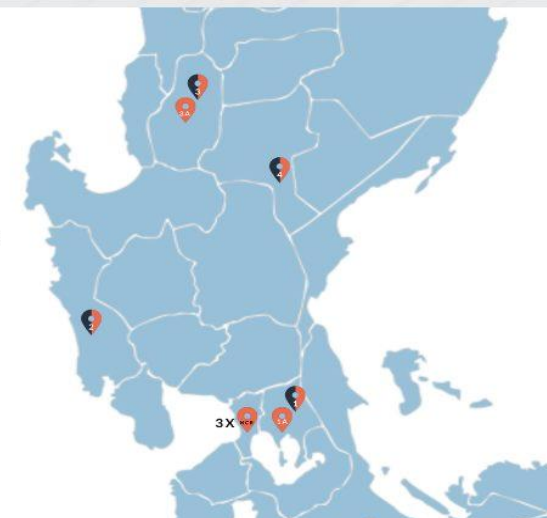
- LokalFi + RuralCasting
- RuralCasting

LokalFi+RuralCasting:

- San Andres, Tanay, Rizal
- Looc, Castillejos, Zambales
- Naguey, Atok, Benguet
- Yabbi, Dupax Del Norte, Nueva Vizcaya

RuralCasting:

- 1A: Madilay-dilay, Tanay, Rizal
3A: Pito, Bokod, Benguet
NCR: Three (3) Sitios in NCR



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REIINN in Action

MADILAY-DILAY ELEMENTARY SCHOOL
TANAY, RIZAL



National Arts Month Celebration with REIINN's Virtual National Museum Tour

Bringing The National Museum to REIINN's Classrooms

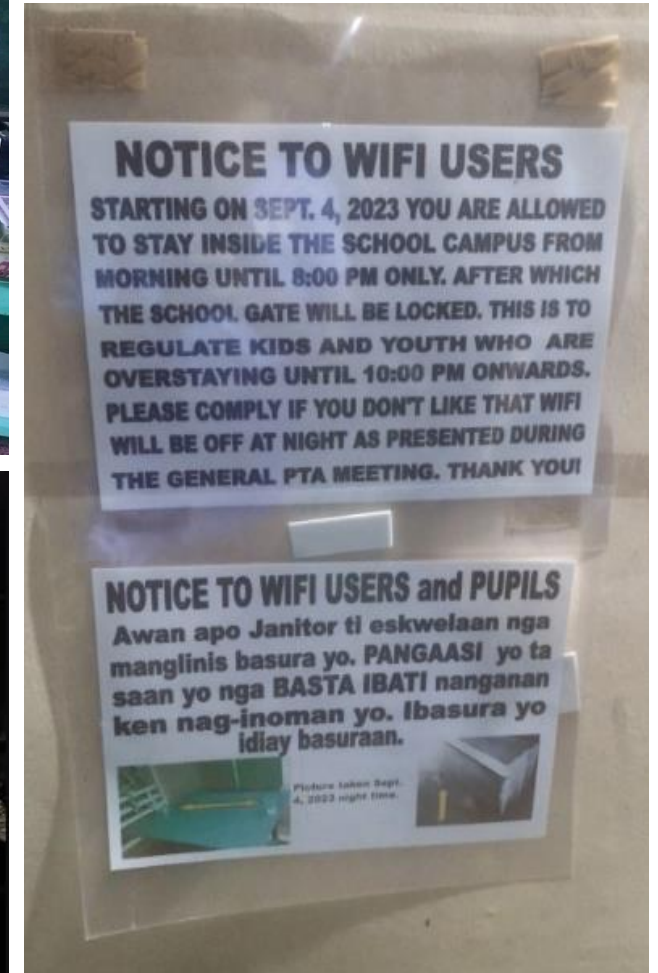
22 February 2024

Arcadio F. Deato Elementary School, Brgy. Balangkas, Valenzuela City





Use-Case in Naguey, Atok, Benguet





Tower Design



Tower Construction in San Andres, Tanay, Rizal and Looc, Castillejos, Zambales





Community Buy-in and Moving Forward

School – Community – Local Government Unit (LGU) Dynamics

- Project proponents provide equipment, training, and OPEX for the handover/test period
- After the project duration:
 - LGU allots funds and sends trained personnel for maintenance
 - Business Entity (preferably from the community) takes over operations
 - Leverage on relations between local school and community
- Exploring other angles to use core technologies for other sectors / beyond education
 - Disaster Risk Reduction (Tower in Community Center)
 - Tourism Sector
 - Urban Setting (Smart Communities)





Points to consider for Philippine Community Networks

Local Context

- ⚙️ **Community Buy-in**, but sensitive to communities' capacity to pay.

Communities will take care of the network if they feel that they own the network: reaping in the benefits while taking responsibilities for its operation.

- ⚙️ **Robust and Cost-Effective Hardware and Software Systems.**

- ⚙️ **Increased Participation of Government**, through policy reforms that will allow the government to perform quasi-telco functions such as importation of equipment and use of frequencies (within an operational framework such as during disasters or in unserved areas)
- ⚙️ **Policy Reforms**, that will enable alternative and other "bottom-up" strategies to be sustainable and thrive with conventional players.



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send us an email



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