



# THE PATH TO GLOBAL BROADBAND ACCESS IN RURAL AREAS USING DAKNET TECHNOLOGIES

**Ms Divya.P, Rameesha.M**

Assistant Proffesor, MCA Scholar

Department of MCA

[divyapakattil@gmail.com](mailto:divyapakattil@gmail.com)

[rameesharafi79@gmail.com](mailto:rameesharafi79@gmail.com)

Nehru College Of Engineering And Research Centre, Thrissur, India

**Abstract :** DakNet offers extremely low-cost digital communication, allowing distant villages to skip over the costs of traditional connectivity solutions and start building a full-coverage broadband wireless infrastructure. DakNet, an ad hoc network that leverages wireless technology to deliver asynchronous digital connectivity, is proof that combining wireless and asynchronous services could pave the way to universal broadband connectivity. This article briefly discusses what DakNet is, how wireless technology is implemented with DakNet, its essential operations and uses, benefits and drawbacks.

**IndexTerms - Mobile access point, Hub, Kisok.**

## I INTRODUCTION

Many developing countries are still grappling with how to improve rural and remote access to information and communication technologies (ICTs). Due to high infrastructure costs, low population density, and limited ability to pay for services, telecommunication firms are frequently hesitant to expand their networks. First Mile Solutions (FMS) addresses this issue through supplying telecommunications system that makes use of new era known as DakNet to attach rural and remote populations to the Internet at a low cost. DakNet is a wi-fi community that offers virtual connectivity in addition to ad-hoc networking. DakNet is a wireless network that provides digital connectivity as well as ad-hoc networking. DakNet provides digital connectivity by utilizing existing transportation and communication infrastructure. "Dak" is a Hindi word which means "post" in English and was the traditional means of communication.

## II. LITERATURE SURVEY

Alex (Sandy) Pentland is a Toshiba Professor of Media Arts and Sciences at MIT and cofounder of MIT Media Laboratory's Digital Nations consortium, the Media Lab Asia in India, the LINCOS venture in Costa Rica, and the Center for Future Health. His paintings encompass wearable computing, communications generation for growing countries, human-device interfaces, synthetic intelligence, and device perception. Pentland is likewise a cofounder of the IEEE Computer Society's Wearable Information Systems Technical Committee, and he has received several awards withinside the arts, engineering, and sciences. Contact him at [pentland@media.mit.edu](mailto:pentland@media.mit.edu).

Richard Fletcher is a cofounder of First Mile Solutions. He acquired a PhD in low-value wi-fi electronics and sensors from the MIT Media Lab and has 3 patents, with seven greater pending. His studies tasks apart from DakNet encompass low-cost radio frequency identity tags and satellite-connected environmental probes for Mt. Everest, Antarctica, and Costa Rica. Amir Hasson is a cofounder of First Mile Solutions, focusing on IT and Web consulting and marketing. Hasson acquired an MS withinside the control of generation from the MIT Sloan School of Management and has spent the beyond 12 months developing and deploying Wi-Fi networks in growing countries. Contact him at [amir@firstmilesolutions.com](mailto:amir@firstmilesolutions.com).

### III. RESEARCH METHODOLOGY

#### Objectives

- It has a central server
- There is a central server which store all the data. The duplicity is been is been checked before inserting the data into the database
- Proposed system reduces the duplicity problem and reduces the bandwidth.

The methodologies used in this study are

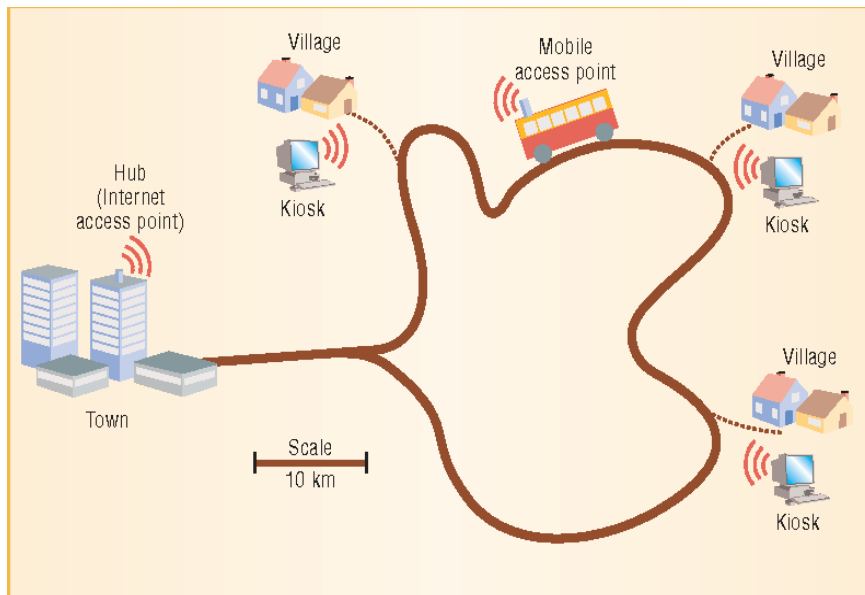


Figure 1: architecture of daknet

DakNet, whose name derives from the hindi word for “put up” or “postal,” combines a physical manner of transportation with wireless facts transfer to growth of the internet connectivity that an applicable uplink or hub, collectively with a cybercafe, VSAT system, or put-up administrative center provides. DakNet, an ad hoc network that uses wireless era to provide asynchronous digital connectivity, is evidence that the marriage of wireless and asynchronous company might also truly be that kernel—the begin of a way to conventional broadband connectivity. Developed with the resource of the usage of MIT media lab researchers, DakNet has been effectively deployed in far off additives of every India and Cambodia at a charged orders of importance much less than that of traditional landline solutions. Villagers now get low-fee internet services—and they’re the usage of them. As one man in a small village outside of New Delhi remarked, “This is better than a telecommunication

#### Architecture of Daknet

DakNet consists of.....

MAP (Mobile Access Point)

Kiosk

Hub (Internet Access Point)

#### Mobile Access Point

The information transmitted over quick point-to-point links. It combines bodily and wi-fi information transported to allow excessive-bandwidth intranet and net connectivity amongst kiosks (public computers) and among kiosks and hubs (locations with dependable Internet connection).Data is transmitted by using a mobile access point or, which routinely and wirelessly collects and can provide information from/to every kiosk at the network.[3] Low cost WIFI radio transceivers robotically switch the information saved withinside the MAP at excessive bandwidth for every factor-to-factor connection. Mobile Access Point is established on and powered with the aid of using a bus or motorcycle, or maybe a bicycle with a small generator. MAPs are hooked up on cars that generally pass via way of every village to offer store-and-ahead connectivity.

#### Hub

It is a not unusual place connection factor for gadgets in a network. It is used to attach segments of a LAN. It carries a couple of ports. Packet at one port copied to all different ports-all segments see all packets. When the vehicle passes close to a web get right of entry to factor the hub-it synchronizes all of the facts from different kiosks the use of the internet.

#### Kiosk

It is an intermediary supply computer services like, ATM. In every village there's kiosk. It calls for a consumer interface that may be used without training. It allows consumer to go into and show data at the equal device. Either directional

**Working Of Daknet**

1) A village-primarily based totally DakNet Service Provider (DSP) is ready with a PC or computer. Villagers can sign on for a DakNet pay as you go account and use the DSP's PC or computer to reserve purchasing items, request process statistics etc. offline.

2) Most DSPs are positioned subsequent to an exceedingly properly maintained road. User facts (which includes email, e-purchasing orders etc.) are transferred to the constant get right of entry to point (FAP) at a kiosk or DSP Centre. From the FAP, the facts are then transferred to a bus equipped with a wi-fi transceiver that prevents outdoor the DSP Centre.

3) When the bus arrives at the desired bus station withinside the nation capital of Bhubaneswar, saved person facts are forwarded through a wi-fi node to a principal workplace of United Villages – additionally in Bhubaneswar – and thence onto real-time Internet.

4) The machine additionally works in reverse: the buses supply statistics from the Internet to person debts on the equal time as they're receiving person facts. The buses additionally supply items ordered through e-purchasing.

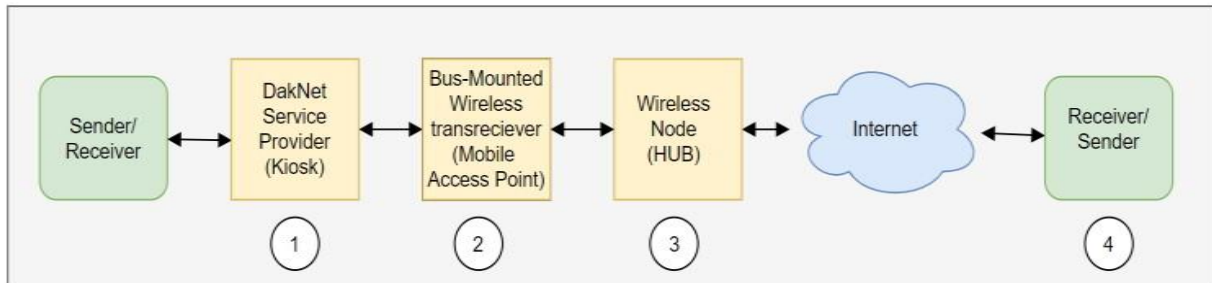


Figure2: daknet store-and-forward drive-by Wi-Fi model

DakNet store-and-forward the model, As shown in the figure above (Figure 2)

- When the center sends the data it been first stored in kiosk.
- The data from the kiosk is been forwarded to nearby MAP.
- When the vehicle reaches nearer to the internet access point (HUB)- the hub synchronizes all the data from the different kiosk.
- This data is been updated on the server, receiver from the other end receives those data

**IV. CONCLUSION**

DakNet's low deployment price and its enthusiastic reception with the aid of using rural customers has prompted dozens of inquires for similarly deployments. This need to offer hundreds of thousands of humans their first opportunity for virtual connectivity, and, as look at after look at has shown, growing connectivity is the maximum dependable manner to inspire financial growth. The large intention is to shift the coverage recognition of the government's universal-service-duty finances from twine line village phones to wi-fi advert hoc networking. The shift will in all likelihood require formal evaluation of person satisfaction, ensuing financial growth, and of direction gadget reliability. If we will clean those bureaucratic hurdles, however, governments are probably capable of join the world's terrible to the net some distance earlier than anybody believed possible. And hopefully, we are able to have the ability to hook up with the faraway regions of the u .s. earlier than we idea well.

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