



5G USE CASES FOR CANE & BAMBOO SECTOR

AS A SUB COMPONENT OF

“5G APPLICATIONS IN NER WITH HUB AT AMTRON, GUWAHATI
FUNDED BY NORTH EASTERN COUNCIL (NEC), MDONER, GOVT. OF INDIA”

BY:

NORTH EAST CANE AND BAMBOO DEVELOPMENT COUNCIL

NEC GOLDEN JUBILEE / G20 TAKEAWAYS

- **Act First North East** - Northeast is our gateway to South-East Asia and can become a centre for the development of the entire region.
- **More Telecom Towers In North East For Better Coverage.**
- **Capitalize On 'Asht Lakshmi (Goddess of Wealth)' Govt.** should work on 8 foundation pillars for the development of entire NE Region. These Pillars which are Peace, Power, Tourism, **5G connectivity**, Culture, Natural Farming, Sports. (https://economictimes.indiatimes.com/news/india/pm-attends-nec-golden-jubilee-meet-in-shillong-releases-commemorative-volume-on-council/articleshow/96317443.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst)
- 5G can positively impact SDG 2030 Gaps for NE as well as enhance output in Tourism, Farming, Sports & Culture Promotion.
- **Ease of Doing Business / Ease of Living**

NEW DELHI
FRIDAY
AUGUST 25, 2023

Pay more attention to farmers, MSMEs: PM Modi to G20 nations

Rajeev Jayaswal
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JAIPUR: Prime Minister Narendra Modi on Thursday called upon G20 nations to pay more attention to farmers and micro, small and medium enterprises (MSMEs) because of their key role in the global economy and underscored his government's focus on small businesses by giving a new definition to MSME—“Maximum Support to Micro, Small, and Medium Enterprises”.

PM Modi also expressed faith in the multilateral trading system under the World Trade Organisation (WTO), which, he stressed, needs to be reformed to meet emerging challenges. “India believes in a rule-based, open, inclusive, multilateral trading system, with the WTO at its core. India has advocated the concerns of the Global South at the 12th WTO Ministerial Conference. We were able to forge a consensus on safeguarding the interests of millions of farmers and small businesses.”

At the 12th ministerial in June, India successfully presented to the world the key issues for it and other developing countries. There have been fears that MSMEs could be crowded out of global trade. “MSMEs account for 80-70% of employment and contribute 50% to global GDP. They need our continued support. Their empowerment translates to societal empowerment,” the Prime Minister said in a video message to the G20 members at the opening of the two-day trade and investment ministerial meeting (TIMM) being held in Jaipur.

“India has integrated MSMEs into public procurement through our online platform—Government e Marketplace—Modi said. “We have been working with our MSME sector to adopt the ethos of ‘Zero Defect and Zero Effect’ on the environment. Increasing their participation in global trade and Global Value Chains has been a priority of the Indian pres-

from the pandemic to geo-political tensions, have tested the world economy. As G20, it is our responsibility to rebuild confidence in international trade and investments.”

The Prime Minister said that the Indian economy is seen by the world with “optimism and confidence” and India has embarked on the journey to become the world's third largest economy. “India is seen as a combination of openness, opportunities and options. During the last nine years, India has become the fifth largest global economy. This is the result of our sustained efforts. We embarked on the journey of Reform, Perform, and Transform in 2014.”

At least twice in the past month, the PM has said that India would become the world's third largest economy in his third term between 2024 and 2028. National elections in India are likely to happen in April next year.

“We have increased competitiveness, and enhanced transparency. We have expanded digitisation, and promoted innovation. We have established dedicated freight corridors and built industrial zones. We have moved away from red tape to red carpet and liberalized FDI flows. Initiatives like Make in India and Aatma Nirbhar Bharat have given a boost to manufacturing. Above all, we have brought policy stability. We are committed to make India the third largest global economy in the next few years,” he added.

Modi urged the G20 to harness technology's transformative power to trade. “India's shift to an online single indirect tax, GST, helped create a single internal market boosting interstate trade. Our Unified Logistics Interface Platform makes trade logistics cheaper and more transparent. Another game changer is Open Network for Digital Commerce (ONDC), which will democratise our digital marketplace ecosystem. We have already done that with our Unified Payments Interface for payment systems,” he said.

NEW DELHI | THURSDAY | 30 MARCH 2023 | WWW.ECONOMICTIMES.COM

Big Challenge Lies in Finding 5G Use Cases: Telco Execs

Danish Khan
@timesinternet.in



New Delhi: India could be seeing the world's fastest pace of 5G roll outs, but telcos are struggling to develop relevant use cases, besides faster speeds, for wider adoption and monetisation, given that top dollars are being spent on the new technology.

To address the challenge, telcos and other stakeholders say there is a need for deep partnerships with various industries to come up with use cases that are specific to the Indian requirements.

Airtel CEO Gopal Vittal last week said that operators are rolling out a “supercomputer” in the form of 5G services, but the challenge is the lack of applications that can truly utilise its capabilities.

“We are creating supercomputers. 5G radios are so sophisticated, that it is no longer just wireless radio technology. It's actually a supercomputer not connected to the cloud. That's really what the industry is building... the supercomputer is being rolled out at a rapid pace, but a supercomputer needs applications,” he said in a speech at the ET/Telecom 5G Congress 2023.

Neil Shah, vice president of research at Counterpoint Research, said that traditional operators are suffering from “use-case myopia” as they transition to 5G and it's difficult to see beyond the easy high-scale smartphone average revenue per user (ARPU).

“It will require a change in mindset, marketing, and models (business and go-to-market). Telcos can no longer look at use cases and drivers in silos, which has been just seeing connectivity as the key driver as they transition to 5G,” Shah said.

He added that new use cases will unlock once you start blending newer tech with 5G e-SIM, AI, cloud, IoT and content.

Prateek Pashine, chief enterprise head at Reliance Jio, said

We are creating supercomputers... rolled out at a rapid pace, but a supercomputer needs applications

plotting different use cases for local requirements can tell what works for the Indian market.

“There are companies that understand the benefits of 5G but are figuring out the use cases that will make sense to them... They are engaging with us on proof of concept trials to figure out whether this use case would work or not.”

Ericsson CTO Erik Ekudden told ET that there is a need to develop a partner ecosystem with start-ups in India to come up with local use cases.

P Balaji, chief regulatory officer at Vodafone Idea, told ET that collaboration is extremely critical and will decide the pace at which the 5G technology will be rolled out. “5G will power the digital highway, enabling the digital economy. This is only possible with the help of collaboration among stakeholders including government departments, state governments, technology providers, startups and telcos.”

COMPONENTS



- ✓ Establishment of 5G Training Lab in all 8 NE States with Partner Institutions and Content by TSSC/
- ✓ Introduction of MOOC (Massive Open Online Courses) on 5G as per guidelines of AICTE / DoT with Telecom Sector Skill Council / DIC, UIET Panjab University
- ✓ Deployment of 5G Use Cases – largely focussing on Healthcare, Education,
- ✓ Pilot on AR Based Landcaping involving North East Cane & Bamboo Development Council.
- ✓ Establishment of an Experience Center at Tech City, Guwahati.

NEW DELHI
THURSDAY
FEBRUARY 02, 2023

Plan to set up 100 labs for developing 5G apps and use-cases, says FM

Vishal Mathur

vishal.mathur@hindustantimes.com

NEW DELHI: Even as the 5G network roll-out continues across India at a rapid pace, the government has outlined plans for expanding its use beyond consumers and enterprises. In her Budget speech, Union finance minister Nirmala Sitharaman called for the development of new applications and business models, which will also create more jobs.

There are plans to set up 100 labs in engineering institutions to develop applications and use-cases for 5G services.

"The labs will cover, among others, applications such as smart classrooms, precision farming, intelligent transport systems, and health care applications," Sitharaman said in her speech.

"The proposed outlay for 5G labs will further push the development of use-cases and the set-up of private networks in India. The research across universities will push innovations and job opportunities," said Peeyush Vaish, partner and telecom sector leader, Deloitte India.

India's 5G auctions, which cul-

minated in the second half of 2022, saw Bharti Airtel, Reliance Jio and Vi acquire 5G spectrum for commercial networks, while Adani Data Networks is expected to launch enterprise 5G services with the spectrum it bought.

"5G networks and devices without use-cases is akin to highways without places to travel to," said Muralikrishnan B, president, Xiaomi India.

The speed at which commercial networks have rolled out, since the official launch in October, has been impressive.

Test labs for 5G applications provide a sandboxed environment for testing use-case prototypes. Indian telecom equipment company Himachal Futuristic Communications Limited (HFCL) is working closely with tech giant Qualcomm and has a 5G lab which focuses on rural mobile broadband.

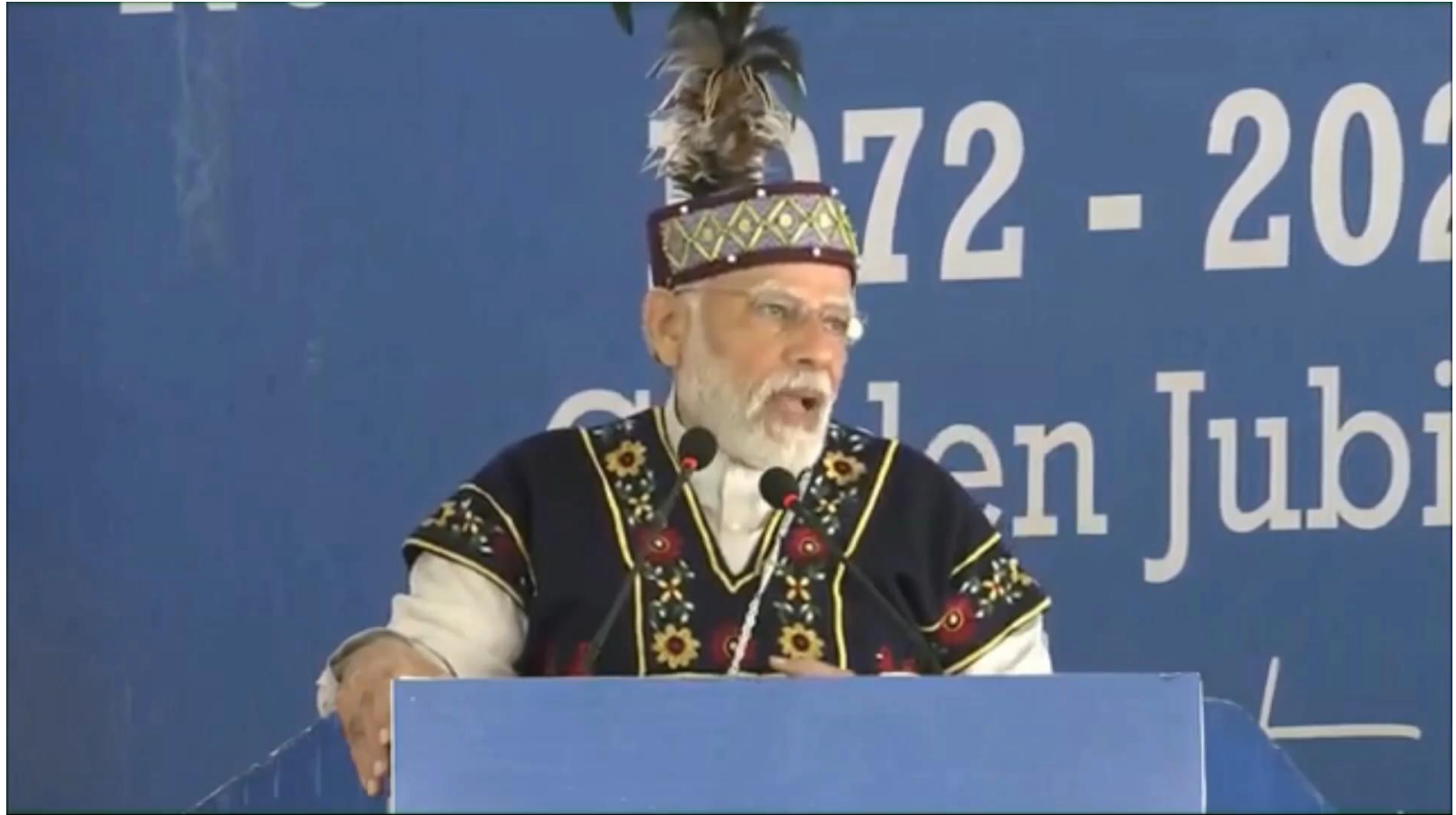
"The setting up of 100 labs to develop 5G will better network connectivity in every nook and corner of the country and further help more sectors and communities to access the benefits of 5G networks," said Sanmeet Singh Kochhar, vice-president – India and MENA at HMD Global.

5G TRAINING LABS WITH CDN / EDGE COMPUTING SOLUTIONS

1. **Assam** – Tech City, Guwahati.
2. **Arunachal Pradesh** - College of Agriculture, Central Agriculture University, Pasighat, Arunachal Pradesh.
3. **Manipur** - Manipur Institute of Technology, Manipur University, Imphal, Maipur.
4. **Mizoram** - Government Serchhip College, Sercchip
5. **Nagaland** - Immanuel College, Dimapur, Nagaland.
6. **Tripura** - Tripura University, Agartala, Tripura.
7. **Meghalaya** - North Eastern Hill University, Shillong, Meghalaya.
8. **Sikkim** - Sanchaman Limboo Govt Degree College, Gyalshing, Sikkim.
9. **Training & Certification of Master Trainers by TSSC**



5G USE CASES – CANE & BAMBOO WORKERS



5G USE CASE APPLICATIONS FOR ARTISANS - POWERED BY COMMON CLOUD APPLICATIONS / 5G CONNECTIVITY WITH IMS SERVER / CDN (CONTENT DELIVERY NETWORK) SOLUTIONS

5G Enabled Use Cases



AR/VR Enabled Training

Immersive training experience / Customer Experience Like Never Before



Metaverse Hosted Virtual Store

Virtual e-store with immersive technologies like Augmented Reality and other advanced software development tools and technologies



AR Based Landscape Planning

Landscape planning and design of highways with augmented reality as creative tool for landscape planners with integrated proposal tool



Mobile Based Imaging

Harnessing the power of 3D scanning on artisan's smartphones to create a three-dimensional representation of the furniture piece and reverse engineering



Crowd Funding Platform

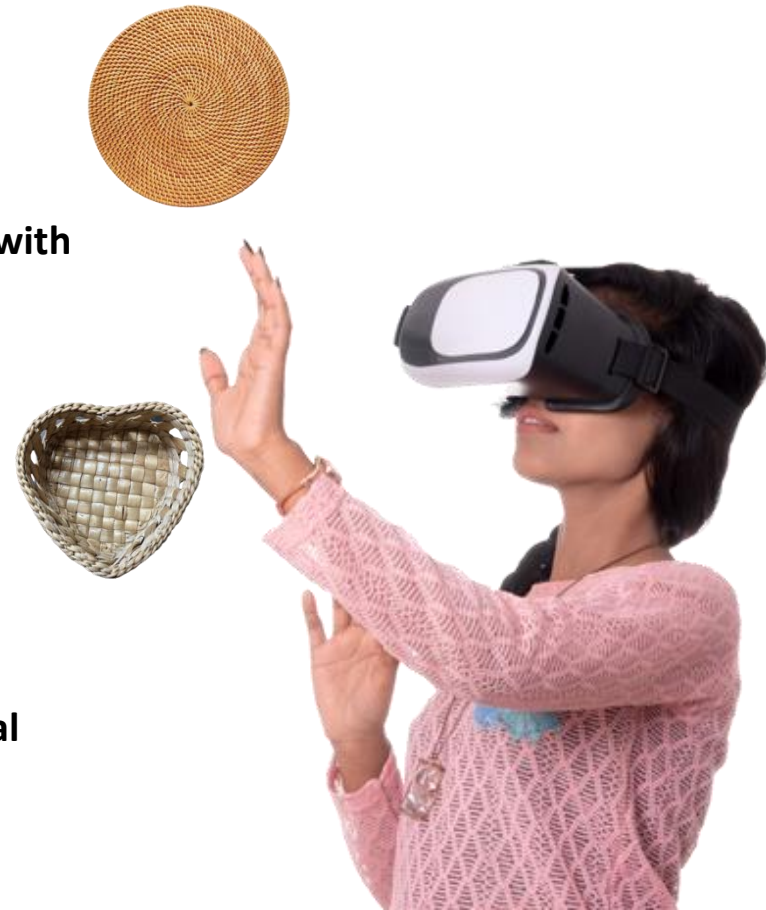
Crowd funding platform to provide New as well as Second Hand 4G/5G smartphones to artisans in NECBDC clusters enabling artisans to access online training modules, collaborate with experts, etc.

AR/VR Enabled Training

5G technology will enable an immersive training experience like never before. Equipped with augmented reality and virtual reality, artisans will now embark on a journey of learning and growth, expanding their skills and exploring new techniques in a virtual environment.

Objectives

- 🌿 Enabling artisans to practice techniques and experiment with designs
- 🌿 Refine artisan's craftsmanship without the need for physical resources
- 🌿 Reach in remote areas with limited access to traditional training facilities
- 🌿 Enable artisans to visualize their designs and create virtual prototypes



METAVEVERSE HOSTED VIRTUAL E-STORE

Virtual e-Store

A virtual e-marketplace, to help the talented and highly skilled handloom and handicraft community of artisans, weavers, and craftsmen showcase their unique offerings to the global market.

Objectives

- 🌿 Provide global demand and buyers for local artisans
- 🌿 Empower artisans to preserve their traditional art forms
- 🌿 Promoting Indian arts and crafts worldwide
- 🌿 Provide an interactive interface to the buyers

Platform Features

- Dynamic Products Rendering
- Payment Gateway Integration
- 2D & 3D Product View
- Live Cart Management
- Map View
- AR-based Product Virtualization
- Order Management & Tracking







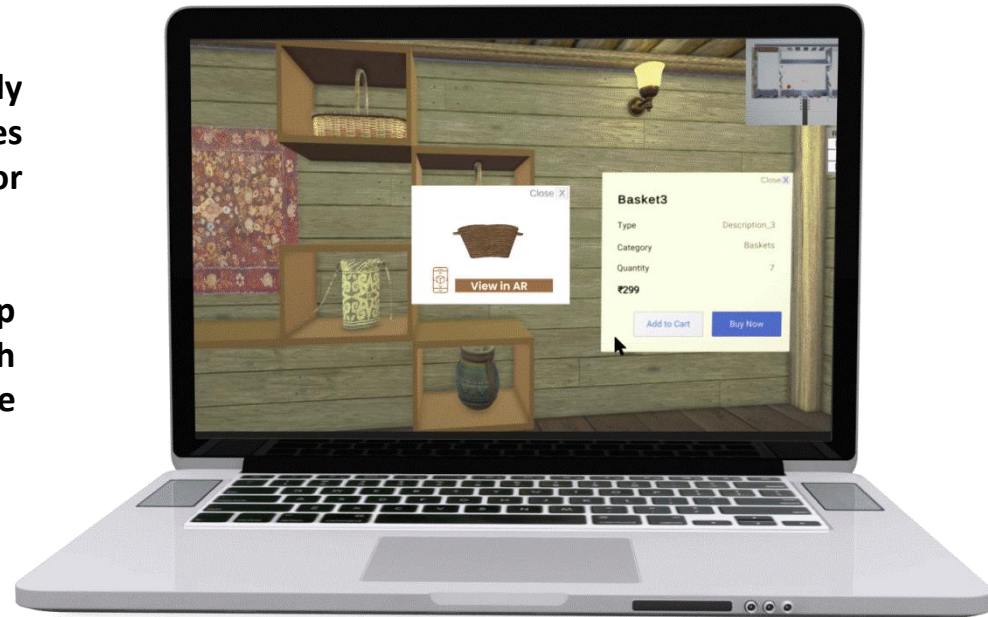
AR SOLUTION - PROVIDE CUSTOM EXPERIENCES TO BUYERS

Drag, Drop, View, Purchase:

3D Virtual Store offers an exciting and innovative tool that allows customers to seamlessly integrate the artisans' products into their own lives. By incorporating an intuitive drag-and-drop functionality, customers can visualize how the products will look in their own homes or spaces.

Benefits of Augmented Reality

-  **Enhanced Customer Experience:** By allowing customers to visualize how the products will look in their homes or spaces, the feature provides an immersive and personalized shopping experience.
-  **Accurate Product Assessment:** The ability to virtually place the products in real-world settings enables customers to assess factors like size, color coordination, and overall aesthetic appeal.
-  **Customization and Personalization:** The drag-and-drop functionality allows customers to experiment with different placements and configurations of the product within their space.
-  **Reduced Risk and Increased Sales:** The feature helps customers overcome the uncertainty of purchasing a product online by minimizing the risk of disappointment.







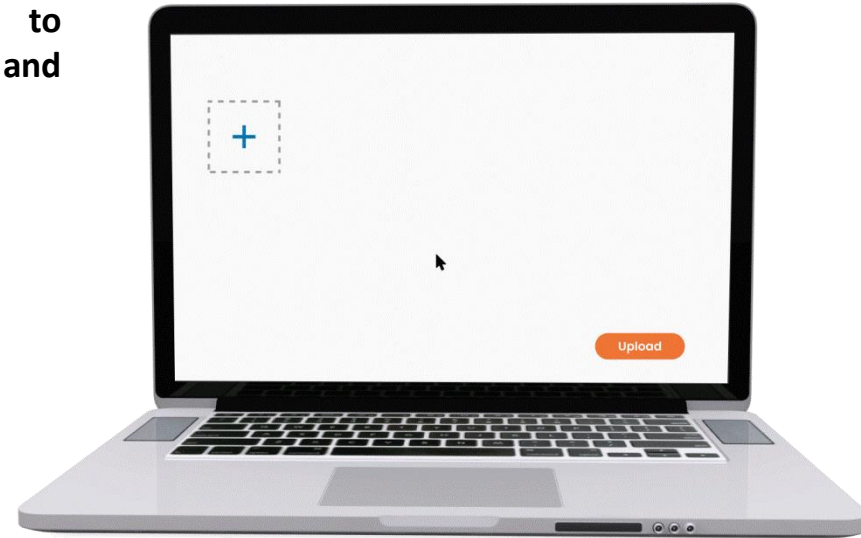
DESIGN VIRTUALIZATION FOR ARTISANS

Explore, Virtualize, Refine.

Design virtualization for bamboo and cane artisans involves utilizing digital tools and technologies to create virtual representations of their designs. Artisans can explore, visualize, and refine their designs before physically creating them.

Benefits of Design Virtualization

-  **Design Exploration:** Virtualization allows artisans to experiment with various design possibilities, shapes, and patterns.
-  **Time and Cost Savings:** By eliminating the need for physical prototyping, artisans can save time and reduce expenses associated with materials and production.
-  **Informed Decisions:** Artisans can make informed decisions about aesthetics and design elements, ensuring the desired outcome.
-  **Market Testing and Customization:** Virtual prototypes enable artisans to gather feedback from potential customers and assess market preferences.







AR ENABLED LANDSCAPE PLANNING WITH SPA, NEW DELHI

AR LANDSCAPING TOOL

With augmented reality landscaping tool, landscape planners can seamlessly integrate cane, bamboo, and other eco-friendly installations along the highways. By simply using a smartphone or tablet, planners can explore various design possibilities and visualize ideas in real-time. It also enables real-time budget planning.

Objectives

-  Eco-friendly installations along the highways
-  Better decision-making and effective communication among teams
-  Rapid prototyping and iteration of landscape designs
-  Enhance the educational and touristic experience along highways

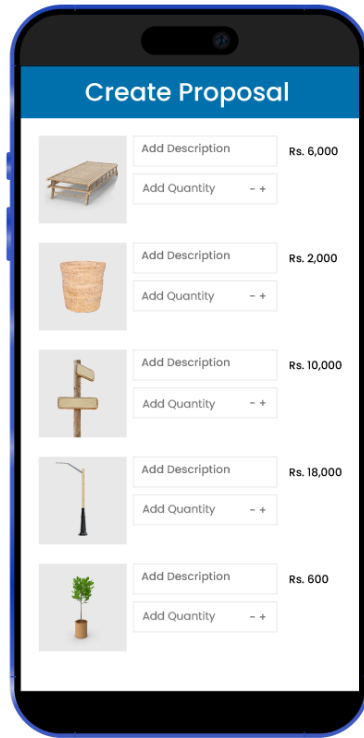


VIRTUAL QUOTATION PLANNING

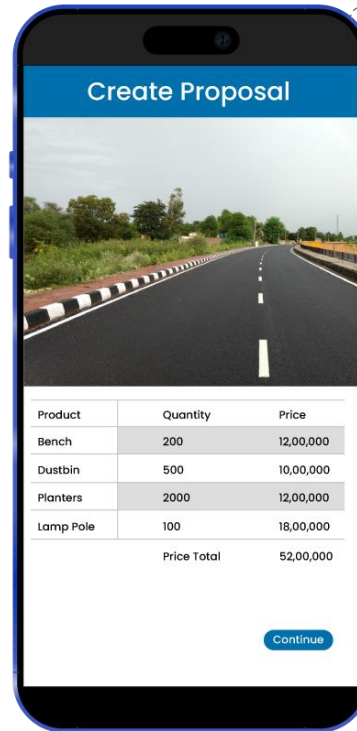
AR Based Planning



Check BOQ



Prepare Quotation



Cost Optimization

By integrating different aspects of the landscape design, the proposal tool enables designers to optimize costs.

Streamlined Proposal

Designers can create proposals directly within the software, including itemized cost estimates, material specifications, and project timelines.

Real-time

Landscape planners can build a proposal of the planned landscape within seconds fostering quick operations.

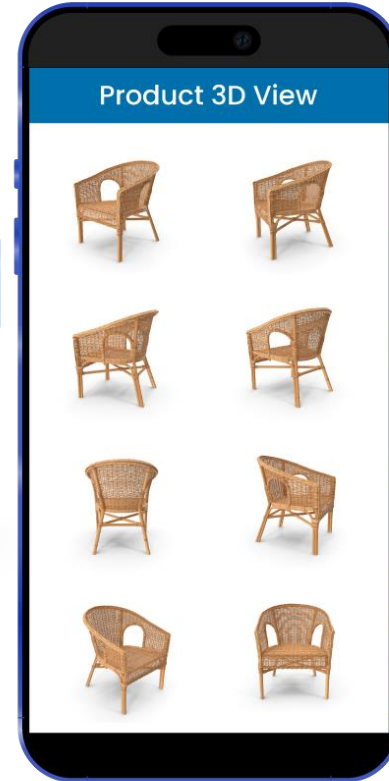
MOBILE-BASED IMAGING FOR REVERSE ENGINEERING

Mobile-based Imaging Tool

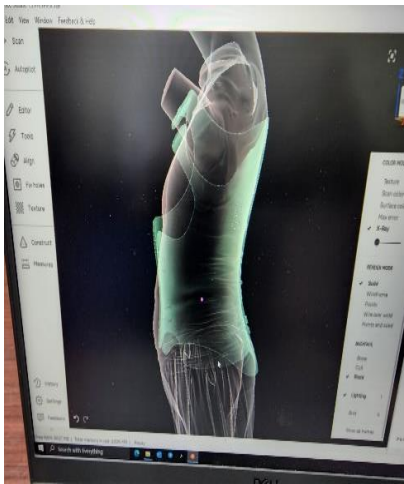
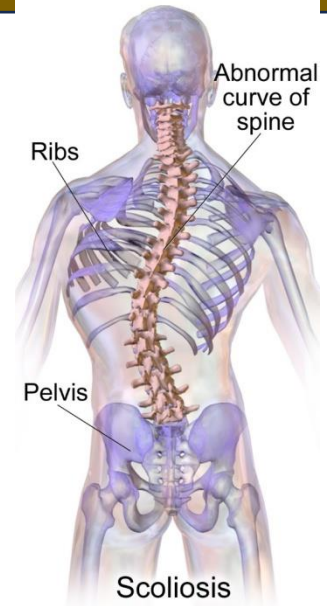
By harnessing the power of 3D scanning, artisans can capture intricate details and precise measurements of furniture pieces, unleashing a new era of customization and personalization. With this digital blueprint, artisans can bring their customers' visions to life, crafting furniture pieces that are tailored to their exact specifications.

OBJECTIVES

- Empower artisans to reimagine the art of furniture making
- Allow artisans to study and analyze crafts more easily and comprehensively
- Help artisans develop their technical skills, improve their understanding of design principles
- Enable artisans to explore new possibilities in their craft



DESIGN VIRTUALISATION FOR EGRONOMIC FURNITURE – OCCUPATIONAL HEALTH CHALLENGES / OLD AGE SUPPORT ETC.



भारत सरकार
GOVERNMENT OF INDIA
सामुदायिक आसुविज्ञान विभाग
Department of Community Medicine
वी. एम्. एम्. सी. एवं सफदरजंग अस्पताल
VARDHMAN MAHAVIR MEDICAL COLLEGE & SAFDARJANG HOSPITAL
नई दिल्ली, NEW DELHI-110029

2431CM/1111423
26/08/23

Ref: Dated: 26/08/2023

To,
The Chief Secretary,
Government of Kerala,
Government Secretariat,
Thiruvananthapuram,
Kerala - 695001

SUB: ASSISTANCE TO DEPARTMENT OF FACTORIES & BOILERS – DEPLOYMENT OF SOLUTIONS FOR ASSESSMENT OF LOCOMOTOR / MUSCULOSKELETAL OCCUPATIONAL HEALTH CHALLENGES FACED BY FACTORY WORKERS IN KERALA AND REMEDIAL MEASURES THEREOF

REFERENCE: PRESENTATION CUM DISCUSSIONS ON 09-08-2023 - PROJECT OF NORTH EASTERN COUNCIL, GOVT. OF INDIA - 5G APPLICATIONS IN NER WITH HUB IN TECH CITY OF AMTRON IN GUWAHATI

Sir,

We are a premier super speciality healthcare institution under the Ministry of Health & Family Welfare, Government of India working in the area of research & development/community health interventions for preventive healthcare wherein one of the major domains is assessment and suggesting remedial measures for Occupational Healthcare Challenges faced by specific population due to nature of work they perform.

Our institution has been closely working with the North Eastern Council, the Government of India, and AMTRON, a PSU of the Assam Government in the deployment of the pioneer initiative for the largest-scale deployment of 5G Health Use Cases in remote and hilly regions of North East India which has been actively supported by Department since it promotes **Ease of Doing Business / Ease of Living** for people at the last mile who suffer a host of disadvantages in accessing basic healthcare screening services including disproportionately high Out of Pocket Expenses. These initiatives seeded today shall have a huge impact on SDG 2030 Goals for North East, especially Health & Gender Health.

My department has witnessed the positive impact of this initiative in areas of improving interventions in preventive healthcare/community healthcare screening, especially for NCD Screening/ Occupational Health Challenges / Geriatrics or Senior Citizen Long term home care / Locomotor Health Challenges etc. The Factories & Boilers Department, Government of Kerala has shown interest in utilization of Locomotor Solutions showcases during the event on 5G Use Cases organized by Kerala Government / Kerala LSA, DoT, we at Community Health



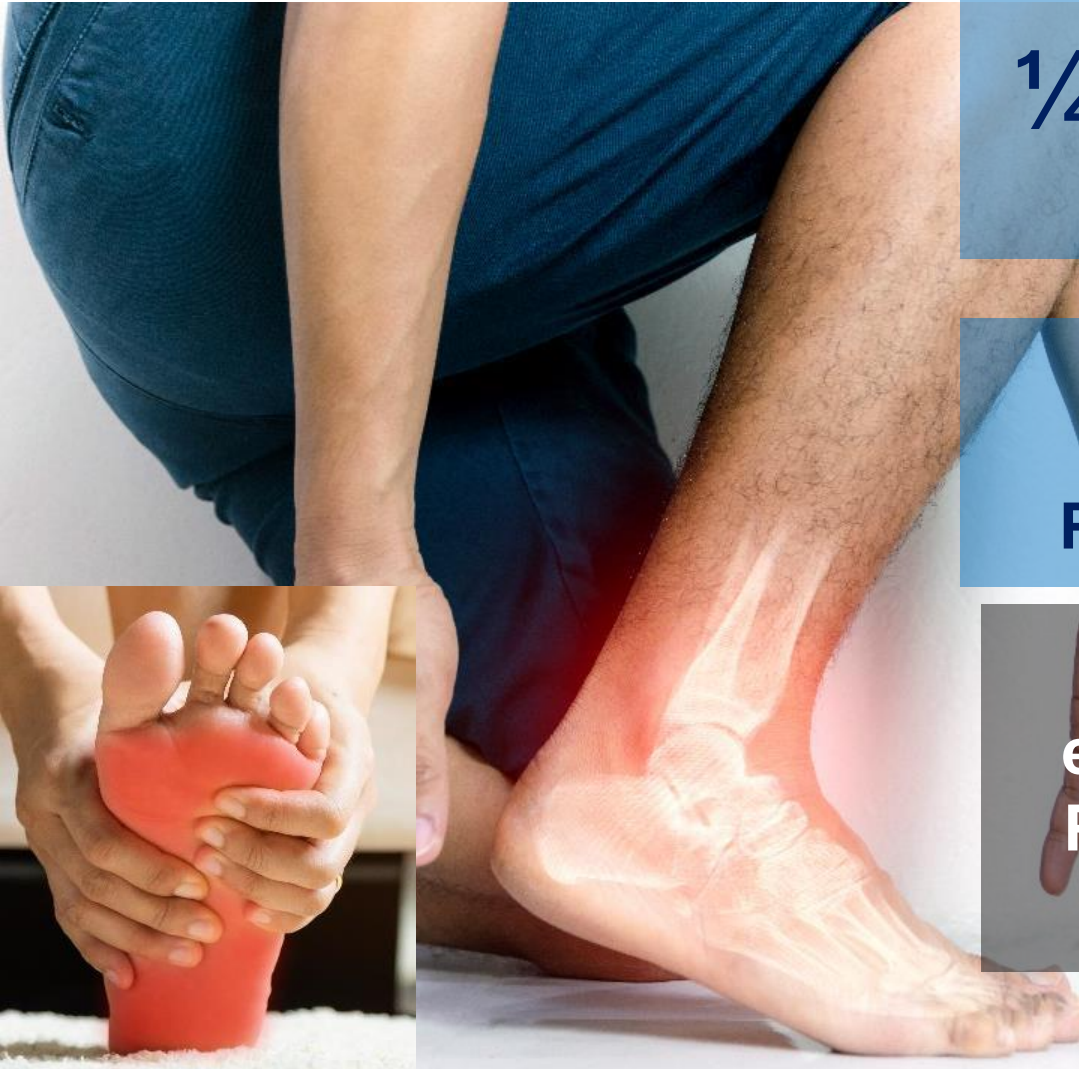
Approximately **1.71 BILLION** people have

MUSCULOSKELETAL conditions worldwide

**1/4 OF THE BODY'S BONES
ARE IN THE FEET**

**PROBLEM IN THE FEET
=
PROBLEMS IN THE BODY**

**75% of people shall
experience FOOT related
PROBLEMS sometime in
their lives**



DESIGN OF WALKING STICK AS PER FOOT PRESSURE – SENIOR CITIZENS

IOT Based System for Locomotive Challenges EASY ACCESS USING MOBILE APP



- 1/4 Of the body's bones are in the feet
- Problem in the feet = Problems in the body
- 75% of people shall experience Foot related Problems sometime in their lives

FOOT DIAGNOSTIC TEST

FOOT PRINT

A B C D

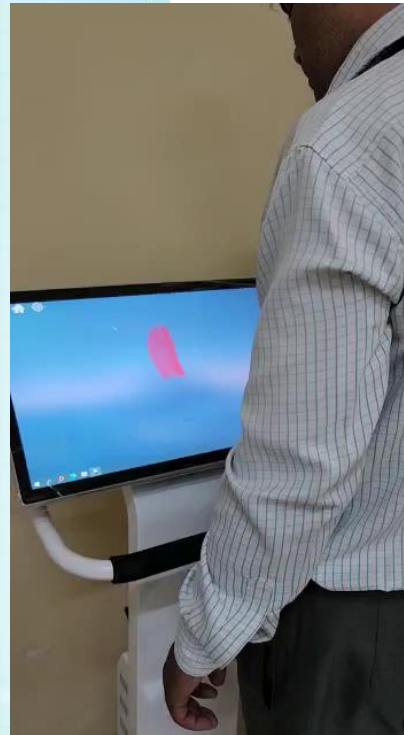
High Arch Medium Arch Low Arch Flat Arch

LEG AXIS

1 Bow Leg 2 Straight Leg 3 Crook Knees



Diagnostic Report



Item description	Foot length(mm)	Foot width(mm)	Thin or clubby foot	Shoe size	Insole recommendation
Left foot	268.0	99.3	(1.0) Thin+	43(WF)	43(WF)
Right foot	267.4	97.4	(1.0) Thin+	43(WE)	43(WE)

Thumb analysis

Left foot Right foot

Left foot	Item description	Right foot
Egypt Foot	Toe type	Egypt Foot
4.7	Thumb angle(°)	0.8
● Normal	Thumb Type	● Normal

Toe Type Description:

Normal Heel Heel valgus

Evaluation criteria:
Normal: 0°-10°
Mild: 10°-20°
Moderate: 20°-30°
Severity: > 30°

Arch analysis

Left foot	Right foot
0.27	0.24

low ← high

Evaluation criteria: High arch: < 0.21 Normal arch: 0.21-0.26 Mild flat: 0.26-0.28 Moderate flat: 0.28 to 0.3 Severe flat: > 0.3

Schematic diagram of arch width coefficient:

Arch height(mm)	Arch width factor
12.2	0.70
20.5	0.92

Heel Analysis

Heel angle(°)	Heel type
1.9	Normal
5.9	Slightly Varus

Schematic diagram of heel inversion:

Evaluation criteria:
Normal: 0°-4°
Mild: 4°-8°
Moderate: 8°-15°
Severity: > 15°

Recommendation: low arch and heel valgus usually indicate excessive pronation (foot rolling inward in the gait cycle). Excessive varus can lead to foot, ankle and knee injuries and further affect the balance of pelvis, spine and shoulders. Stability shoes and motion control shoes have solid inner support, which is most suitable for over pronation feet. High arch and heel varus, neutral shock-absorbing shoes are the most suitable. A normal arch and heel are best for stable shoes. For any type of arch or heel deformity, properly designing and making foot correction insoles can promote the normal biomechanical function of lower limbs, better adjust your whole body, improve your posture, and prevent injury or damage to the body.

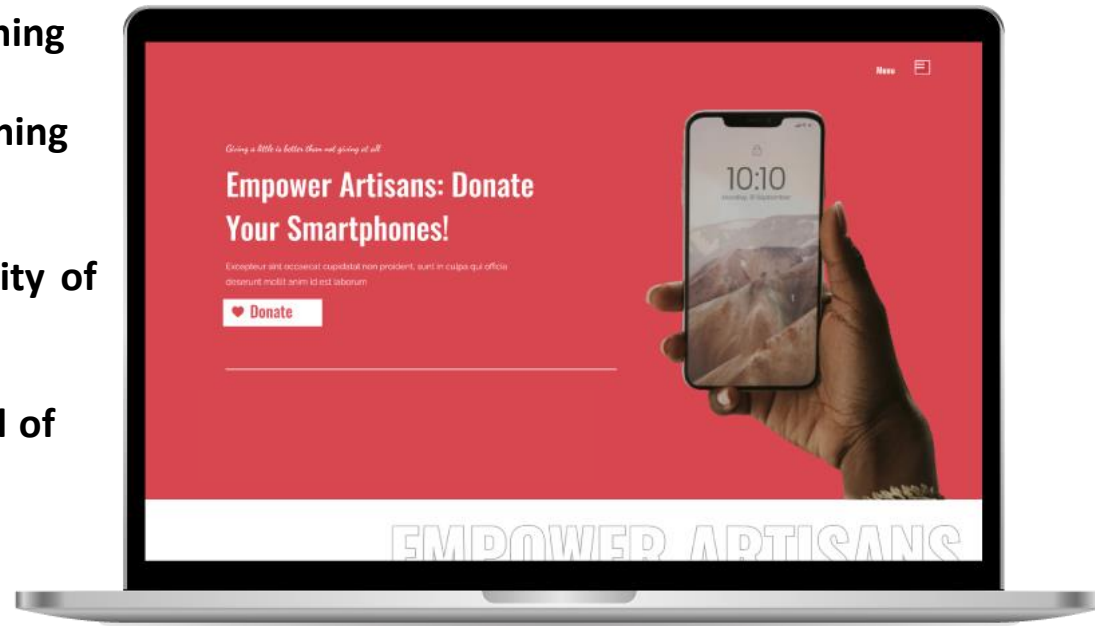
CROWD FUNDING FOR MOBILE BANK

Crowd Funding Platform

A crowd funding platform will provide second-hand smartphones to artisans in NECBDC clusters. Donating your mobile phone is quick and easy. Simply visit the portal and in just a few clicks, you can list your device for donation.

OBJECTIVES

- 🎯 Ensure access to technology and training
- 🎯 Enable artisans to access online training modules
- 🎯 Connect artisans with their community of fellow craftsmen
- 🎯 Help artisans realize the full potential of all 5G use cases



DIGITAL ACCESS CHALLENGES – BUFFERING AND LATENCY

Internet connectivity is a basic human need and desire and crucial to achieving all human goals. With growing number of applications anywhere, anytime and therefore and low cost Mobiles/ tablets/ Laptops is making ubiquitous wireless connectivity not just a convenience, but an expectation.

However, the challenges in NE and Rural areas are as under:

1. Most areas have poor access to internet with bandwidth availability challenge and hence downloading the online content remains a challenge in accessing online resources
2. The data hosted on online platforms like google search engine, Facebook, YouTube etc. is on servers which is geographically far away from users in Tier II Cities onwards / Rural Areas etc. Hence, when multiple users start to access the same content in bulk from the same geographical location, buffering takes a lot of time and leads to user dissatisfaction. A common manifestation of this is crashing of exam result websites every year across India or the time taken in buffering before the e-content is downloaded.

Speed of Internet is Still a Drag

Slow networks are preventing many from making use of digital platforms

TEAM ET
Evolution of consumer technology is largely premised on internet speed. India is on the threshold of becoming a leading digital economy. But for a country clocking more than a billion payments a day, the need for more reliable internet connectivity has never been felt more acutely. Industry leaders believe that while assisted help in this mode of doing business is a great bridge in rural areas, internet lags are excluding many from using digital platforms.
"Trust is important. In business, when the customer is depositing money, he needs to be sure that the transaction will go

through," said Rishi Gupta, CEO, Fino Payments Bank. Gupta was part of the panel on the ET Financial Inclusion Summit. Other panelists included Praveena Rai, chief operating officer of National Payments Corporation of India (NPCI), Anand Kumar Bajaj, CEO, PayNearby, and Ganesh Ananthanarayanan, COO, Airtel Payments Bank.

that money, they will be able to have that assistance service and access to the money," Rai said.
Ananthanarayanan of Airtel Payments Bank said that many of Airtel's customers use business correspondent agents for cash transactions and buying financial services and other products. In May, UPI processed 2.53 billion transactions, down 4.16% and



Rishi Gupta
CEO, Fino Payments Bank

Anand Kumar Bajaj
CEO, PayNearby

The Times of India new delhi Monday July 5, 2021 Teachers in rural India fight a losing battle to keep kids in 'class'

In Bihar alone 14 crore students are without digital devices. To make sure education reaches all, teachers are trying everything from evening classes to phone recharges

Manish Debnath@timesgroup.com
With lockdowns shutting schools across the country, students have struggled to access remote learning in some places, they wait for their parents to return from work so that they can access lessons sent by the teacher on WhatsApp. Some head up at neighbours' homes asking to use their smartphones. Others watch non-interactive recorded lessons on TV. But the struggle isn't their phones. Teachers across rural India spoke about how they were attempting to ensure their students didn't fall behind with measures that range from open-air classes to recharging phones.
Binodjit Bodo, head teacher of Jagul High School in Barampukur village in Assam's Papur district, and his colleagues have been conducting classes in open spaces or in Nam Ghars, places of congregational worship, since only around 150 of the 480 students in the school have access to smartphones.



BRIDGING THE GAP With no internet or digital devices, students are forced to attend classes in the open in Odisha's Sundargarh district

Digital divide among Indian students
Number of students who don't have access to a digital device (in lakh)

Bihar	22.5
Jharkhand	21.5
Karnataka	21.2
Assam	18
Odisha	15
Haryana	10

Source: Ministry of Education

flexible. Nasim Ahmad, who heads an Urdu medium primary school in the Chitauri village near Ranchi, said that 100 of the 186 students have access to their parents' mobile phones.
"We have two-hour open-air classes for those without phones. For those who do, we conduct classes from 7 pm onwards, after their parents return from work," he said.
Anil Kumar Pradhan, who teaches in a government school in the Lakhandia village of Odisha's Sundargarh district, said that even when students had access to a smartphone, they didn't have access to the internet. "So, once a week we visited their homes to teach them whatever is possible," he said.
Even in a state like Kerala, that ranks high on development indicators, internet access has been a problem in rural areas. Michael Sebastian, from the organisation Samagra Shiksha Kerala in Udupi, said students in the state have been watching classes that are aired on television. But in Idukki, where there are many tribal hamlets, many homes don't have continuous power supply.
Sebastian said they set up public study centres where education volunteers can help the children. "More than 1,000 students, including the tea estate workers' children, attend TV classes in these public study centres," he said.

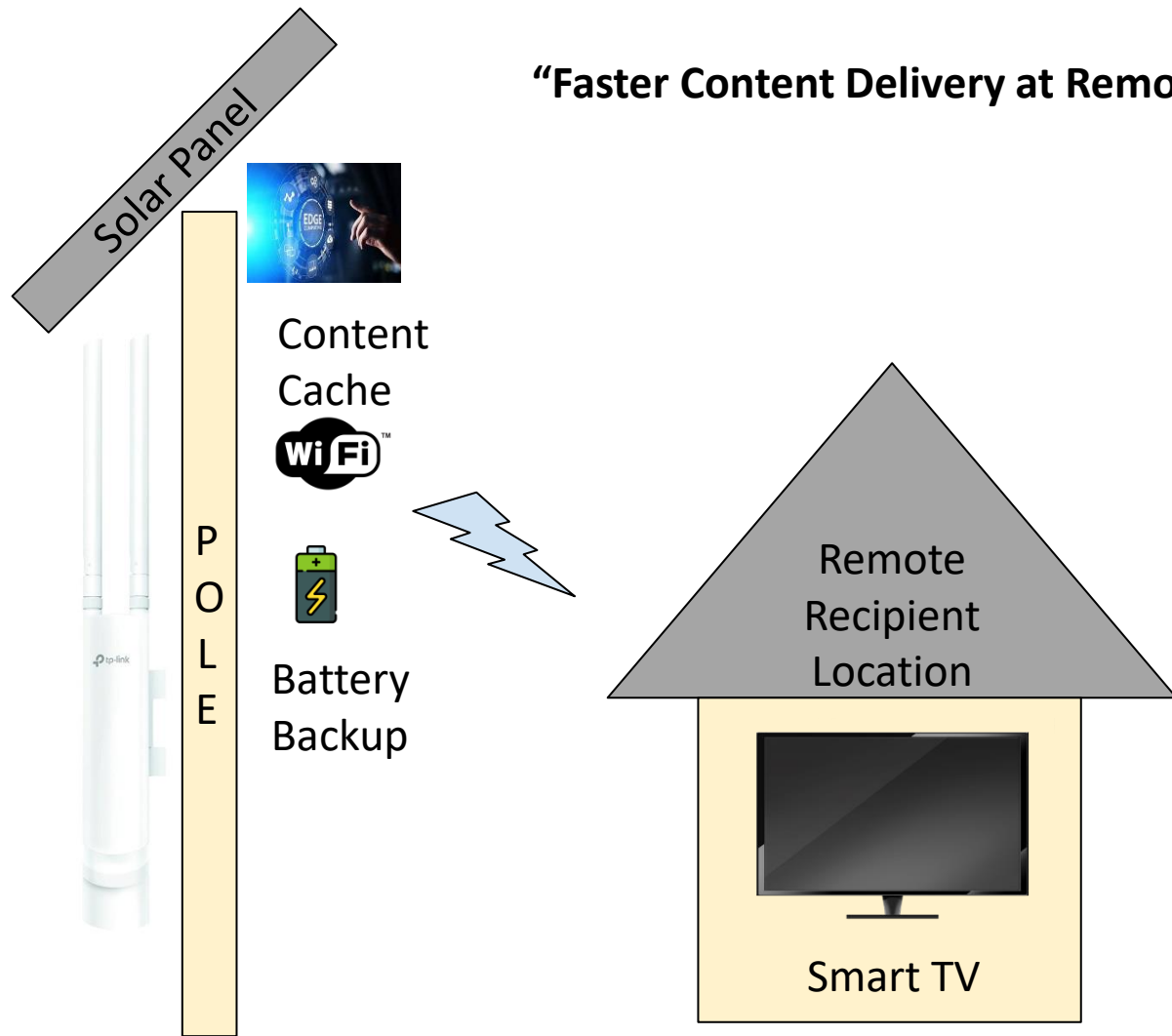
OUT-OF-REACH RECHARGES
Even when there is a phone and internet, there are hurdles like lack of money. "The parents told us when there is no food in the house how can they recharge the phones? There are many children whom we assisted by recharging their parents' mobile phones," said Ahmad, the teacher from Jharkhand.
In Andhra Pradesh, Satnarayan Sastry said that the state government had deposited Rs 10,000 in the bank accounts of mothers whose children are unenrolled in the schools but only a few bought phones with the money. "The government offered a laptop or Rs 15,000 and a minority opted for the money that that money was mostly spent on other essential things as many don't even have enough for food," he said.
GETTING THEM BACK IN SCHOOL
Most teachers also admitted that there is a growing learning gap with students' performance declining significantly. Educationist and former CBSE chairperson Ashok Ganguly pointed out that online education is an interim measure and not a real education. "Learning loss can be addressed through innovative measures such as SMEs which assign students engaging activities," he said.
Then there is the problem of dropouts. The education ministry said nearly 50 lakh children are out of school last in the two states of Jharkhand and UP. Education Minister Manoj Sinha said that dropouts can be recovered with school support or back to School programmes. "This is an opportunity to get schooling right, where schools reach children, rather than forcing children to come into regimented schooling," she said.



For detailed report, scan the QR code

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OUTCOMES - NORTH EAST'S SDG 2030 GOALS

S. No.	Parameter	Impact
1.	SDG 3 - Good Health and Well Being	Help Artisans To Design Ergonomic Furniture For Occupational Health Challenges by interacting with Clients 1000's of Kms away.
2.	SDG 4 – Quality Education	Immersive Learning by enabling use learning tools like AR/VR/MR etc.
3.	SDG 5 – Gender Equality	Open New Economic Opportunities for Women * Report of GSMA [Global System for Mobile Communications] says that there is a considerable gender gap in mobile ownership (14%) and mobile internet use (41%) wherein lack of awareness and digital skills are among the top barriers to <i>mobile internet adoption and usage among women</i> .
4.	SDG 9 – Industry, Innovation & Infrastructure	5G Labs can be used for local youth for Design Innovations
5.	SDG 12 – Responsible Consumption & Production	Promote sustainable consumption

THANK YOU