VocalizeIoT

Bridging the vocational education skills gap through hands-on innovative training tailored to today's digital world

MAY 2025

NEWSLETTER

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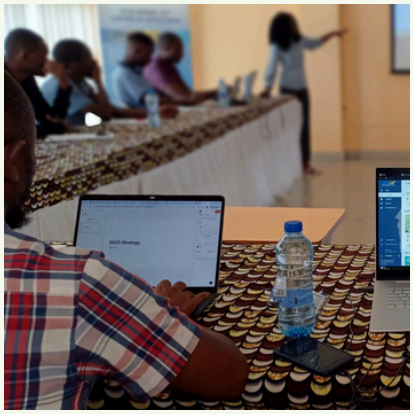

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EDITOR'S NOTE

As we advance into the future of work, bridging the gap between vocational education and industry demands has never been more critical. The VocalizeIoT project, supported under the ERASMUS initiative, is at the forefront of this mission—empowering VET institutions in Kenya and Tanzania with practical, industry-relevant IoT skills. By introducing adaptable training programs, building capacity in institutions and fostering innovation through the IoT Edge Platform, we aim to equip youth with the tools they need to thrive in emerging technical fields.

In this edition, we're highlighting some of the key milestones we've reached. Our TVET visits have taken us across the country, where we've been gathering insights on how IoT can address challenges in both urban and rural communities. Our Train of Trainer programs with @iLabAfrica, The Nairobi National Polytechnic and even in Tanzania are equipping a new generation of tech leaders with the skills to innovate locally and sustainably.

As we continue our journey, we're more committed than ever to driving sustainable change through IoT. The future is unfolding, and we're thrilled to have you with us on this journey.

@iLABAFRICA, KENYA

STAKEHOLDER PARTNER WORKSHOP

Emmanuel Kweyu

Deputy Director
@iLabAfrica Research Centre

You should not lay an egg and eat it. @iLabAfrica does not take revenue shares from start-ups. Rather, they help manage funds instead.

Jared Nganyi

Manager
IoT & Wireless Networks Unit
@iLabAfrica, Strathmore University

Internet of Things is an emerging technology that is changing the way we do things, so we have to embrace it and the only way to do that is to include it in the curriculum.

The VocalizeIoT workshop, hosted by @iLabAfrica at Strathmore University in June under the theme "Bridging the Gap: Aligning Tech Education with Industry Needs for the Fourth Industrial Revolution," marked a critical step in the project's implementation phase. Mr. Emmanuel Kweyu, Deputy Director of @iLabAfrica Research Centre, opened the event by celebrating the initiative's six-month milestone and stressing the urgency of embedding IoT education across sectors to keep pace with rapid technological advancements. He underscored the need for accessible training, mentorship, and financial support to nurture innovators, spotlighting @iLabAfrica's incubation center. This hub equips trainees with pitching and communication skills to attract investors while ensuring startups retain full ownership of their ventures. Mr. Kweyu remarked with his quote, emphasizing the center's commitment to sustainable growth without claiming revenue shares.

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Transforming the ICT Education with Industry at the Table

FAST FORWARD

VETA Kipawa ICT Centre held a stakeholder engagement workshop on September 6th, 2024, to determine skills gaps in the existing ICT curriculum. The workshop, with 29 attendees, comprised educators, industry experts and IoT professionals who came together to align vocational training with industry needs. Facilitation was done by Mramba Makange from Dar Teknohama Business Incubator (DTBi) institution and the discussion covered gaps in the existing curriculum as well as solutions.

Critical skill gaps identified in the VETA Kipawa ICT curriculum

1. Single-chip programming and embedded systems for IoT development.
2. Cybersecurity, cloud computing, and data analytics for secure and efficient digital solutions.
3. Artificial Intelligence (AI), machine learning, and software engineering for emerging technologies.
4. Project management and digital marketing to enhance innovation commercialization.

Recommendation for Sustaining Innovation at VETA Kipawa

- Developing courses that integrate IoT applications with real-world industry needs.
- Enhancing business skills to help students commercialize their innovations.
- Strengthening hands-on training with advanced technical skills in IoT deployment.

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Empowering Tanzania's Future with IoT Training

HIGHLIGHTS

The Vocalize IoT Workshop held on June 26th, 2024, marked a significant step toward integrating Internet of Things (IoT) training into Tanzania's Vocational Education and Training (VETA) curriculum. Organized by DTBi, this event brought together industry stakeholders, educators, policymakers and innovators to align education with market needs and advance Tanzania's role in the Fourth Industrial Revolution.

With a well-structured agenda, the workshop encouraged vibrant discussions and meaningful collaborations. The program included insightful presentations on IoT trends, group discussions on key themes and interactive sessions for stakeholders to share their expertise.

Key themes addressed by the four discussion groups

- Developing courses that integrate IoT applications with real-world industry needs
- Curriculum Development and Stakeholder Involvement
- IoT Demand in Agriculture and Policy Recommendations
- IoT Training in the Fourth Industrial Revolution
- Practical Training and Industry Collaboration

THE WORKSHOP DROVE IMPACT

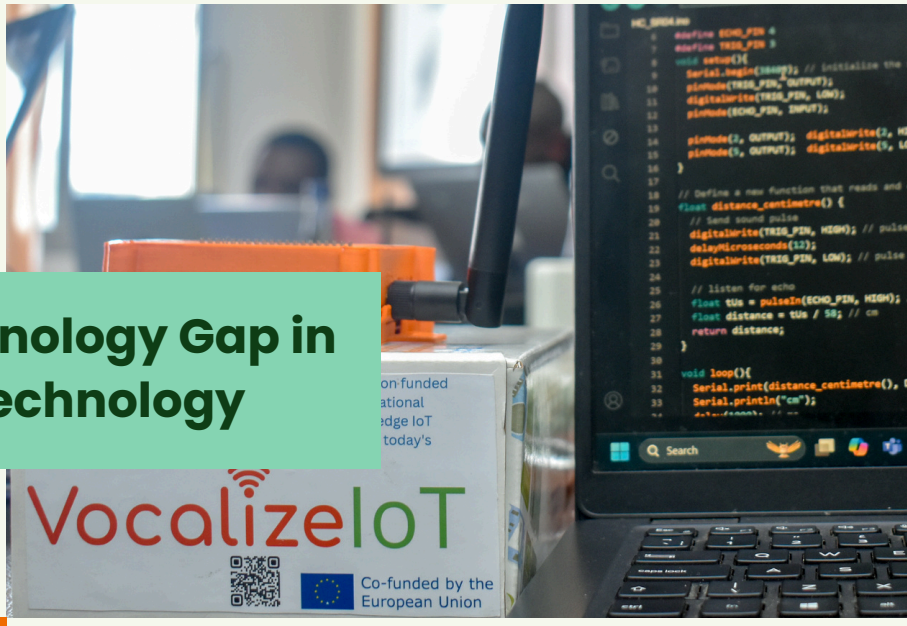
Working in small, focused groups, participants shared ideas and experiences that led to practical recommendations shaped by Tanzania's unique IoT landscape.

Group 1 focused on curriculum development, advocating for stakeholder involvement to ensure alignment with industry needs. They recommended extending IoT training durations and emphasized inclusivity by making the programs accessible to women.

Group 2 highlighted agriculture as a priority sector for IoT solutions, proposing subsidized training programs capped at 350,000 TZS ($138.7 USD) to enhance accessibility. They also recommended supportive policies, early IoT education and post-training initiatives like makers' hubs and intellectual property training.

Group 3 emphasized the importance of IoT training in the Fourth Industrial Revolution for boosting efficiency, reducing costs, and enhancing security. Their proposals included tax incentives for IoT equipment, increased community awareness, and time management training.

Group 4 focused on practical aspects of training, suggesting targeted programs for professionals and incorporating additional technologies like robotics and AI. They also proposed initiatives like establishing a community factory for IoT product packaging and hosting exhibitions to showcase learners' projects.



Bridging the IoT Technology Gap in Africa with Waziup Technology

Dr. Abdur Rahim
Managing Director
Waziup e.V.

Africa's IoT potential lies not only in adoption but in innovation. Programs like VocalizeIoT are helping lay the groundwork for a skilled workforce capable of developing homegrown IoT solutions. As IoT adoption grows—expected to connect over 600 million devices in sub-Saharan Africa by 2025—the role of well-trained educators cannot be overstated. These workshops aren't just about teaching; they're about preparing Africa to lead the IoT revolution.

> *We want to ensure IoT education isn't limited to classrooms but drives real impact in industries and communities.*

In October and November 2024, over 40 trainers from the leading vocational institutions in Kenya and Tanzania gathered for hands-on IoT training. These sessions, spearheaded by **WAZIUP**, aimed to bridge the skills gap in IoT education. Participants tackled real-world applications such as deploying LoRaWAN gateways for remote monitoring, integrating AI for data analysis and developing IoT applications using open-source tools such as WaziDev, WaziGate, WaziLab etc.

The workshops also introduced Hybrid Solution Labs, practical environments that simulate real-world IoT applications and launched short modular courses aligned with sectors such as agriculture, health and manufacturing. With a strong emphasis on inclusivity, the program encouraged greater female participation in the tech space. Early outcomes are already visible, with trainers at TNNP developing smart irrigation systems for local farms, while teams at @iLabAfrica are piloting IoT-based air quality monitoring solutions in Nairobi. WAZIUP continues to drive efforts that enable scalable, locally relevant innovation through education.

The catalyst Program

TRAIN THE TRAINER IOT PROGRAM

From November 27th to December 18th, 2024, The Nairobi National Polytechnic (TNNP) hosted a four-week blended IoT training program designed to equip trainers with both foundational and advanced IoT competencies. Conducted every Wednesday, the sessions combined in-person training with self-paced online modules hosted on the WaziLab platform. This hybrid approach ensured flexibility and comprehensive skill development for trainers across various departments.

The program, facilitated by the Waziup team — including Dr. Abdur Rahin, Corentin Dupont, Solomon Githu, Ryan Kiprotich and Brian Keya—covered critical areas of IoT implementation. These included deploying LoRaWAN gateways (WaziGate), integrating sensors through WaziDev and WaziCloud and building web/mobile applications with API management. Participants also explored data analytics and artificial intelligence to extract actionable insights from IoT data.

Practical IoT Deployment Skills

Trainers acquired hands-on experience with LoRaWAN gateway setup, sensor integration and Waziup technologies.

Blended Learning Integration

Successfully combined physical and online sessions, enabling flexibility and deeper understanding.

Institutional Capacity Building

Strengthened the polytechnic's ability to deliver IoT-focused training aligned with industry trends.

Foundation for Future Programs

Set the groundwork for scaling IoT education across other VET institutions in Kenya.

Thank you for reading! We hope that you have enjoyed the latest edition of the newsletter and thank you for following us on our journey! For more information on the project results and outcomes, please feel free to visit us on our website:

www.vocalizeiot.org

www.linkedin.com/showcase/vocalizeiot

Sincerely yours,
VocalizeIoT Project Team

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Germany

Nairobi Technical Training Institute
Kenya

Kipawa ICT Centre
Tanzania

Ente Nazionale Giuseppini Del Murialdo
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