VocalizeIoT

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

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NEWSLETTER

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EDITOR'S NOTE

The VocalizeIoT is continuing to enforce its revolutionary journey in **enhancing vocational education and developing digital skills in Africa.** From the successful partners' meeting at Strathmore University, consortium members reaffirmed their shared commitment and common goal to innovation, to launch hybrid IoT labs, introduce new curriculum submissions to CDACC and effective training programs in both Kenya, Tanzania and beyond through virtual programs.

VETA Kipawa and **The Nairobi National Polytechnic (TNNP)** launched two IoT short courses that attracted more than **141 learners**. Each course used a hybrid learning model combining online learning using the Wazilab learning platform and physical solution lab sessions. Each VET partner also organised two design thinking bootcamps and industrial field trips following the IoT short courses. These skills are necessary for industry 4.0 IoT educational models which have potential to influence the global workforce of the future.

As you delve into this edition's success stories, VocalizeIoT's collective efforts are laying the foundation for sustainable, scalable models of IoT education that aspire to shape the future workforce. This is in addition to addressing local needs and reaching out to individuals from diverse backgrounds.

On other highlights, who ever thought that events like a maths contest would serve as a platform to introduce others to VocalizeIoT courses? This shows that there are many platforms and opportunities, not just social media in which we can disseminate the message of embracing IoT for the future.

Looking ahead, we are optimistic about expanding our training activities, opportunities, advancing industry partnerships and making sure that the next generation of learners would fully harness the potential of IoT for innovation, employment and entrepreneurship.

VOCALIZEIOT PARTNERS MEETING AT STRATHMORE UNIVERSITY

The VocalizeIoT project continues to make significant strides in its mission to impact digital training across vocational institutions across Africa.

The first partners' meeting of the year, held both online and in-person at @iLabAfrica on 11th April 2025, brought together stakeholders from Kenya, Tanzania, and Italy, Germany to assess progress, align on next steps, and reaffirm the project's commitment to upskilling youth in emerging technologies. It was a time to reflect on the milestones of the project and activities to be done during the year.

Chaired by Corentin Dupont from WaziUp and moderated by Jared Nganyi from Strathmore University, the session reviewed the status of key VocalizeIoT work packages (WP1–WP6), ranging from curriculum development to lab deployment and training outcomes.

A major highlight was the update on the VocalizeIoT Work package that focused on the deployment of hybrid IoT labs at vocational centres. TNNP (The Nairobi National Polytechnic formerly Nairobi Technical Training Institute) in Kenya and VETA Kipawa in Tanzania reported receipt of **20 WaziDev boards** and successful setup of a gateway system. The labs form a crucial infrastructure backbone for students to engage in hands-on sensor-based projects.

In one of VocalizeIoT's work plans, the "Train of Trainers" initiative was reported to have empowered **20 trainers** with foundational IoT knowledge. At TNNP, **35 students** enrolled in short evening sessions, showing growing interest in flexible learning formats. Some implementation challenges were also identified, particularly related to internet connectivity and fragmented digital learning platforms. Compatibility issues between Moodle and the WaziLab platform are currently being addressed through ongoing integration and standardization efforts to ensure a smoother learning experience moving forward.

Curriculum development under the VocalizeIoT saw major advances with the draft IoT curriculum submitted to national authorities **(CDACC)** for validation. Stakeholders emphasized the inclusion of both technical modules such as sensors, cloud architecture and security as well as entrepreneurial skills like **market analysis, CRM (Customer Relationship Management), and finance**. These serve as a holistic approach aimed at nurturing not only tech-savvy graduates but also future startup founders.

In terms of outreach, the VocalizeIoT team called for a renewed push on communication efforts, urging partners to spread the message of IoT. Talks for inter-VET networking events and the documentation of activities are underway to enhance visibility and collaboration.

Ultimately, this meeting marked a pivotal step in ensuring sustainability and impact assessment under VocalizeIoT. The timely coordination of reports and resource mobilization remains were deemed essential, especially with reporting milestones.

For the VocalizeIoT project, this partners' meeting reaffirmed that Africa's digital future is being built not just with technology, but with **collaboration, local ownership, and a shared commitment to empowering youth** with the tools to innovate.

DEVELOPING IOT TEACHING CAPACITY: VET STAFF TRAINING AND HYBRID SOLUTIONS LAB

With the creation of its first set of training materials targeted at enhancing the capabilities of vocational education and training (VET) personnel in Kenya and Tanzania, the VocalizeIoT project has achieved a significant milestone. The initiative's goal was to provide teachers the technical, pedagogical and entrepreneurial skills they require to provide interactive Internet of Things (IoT) education that meets the demand for the local and international market.

A Comprehensive Method for Training

Co-designed with VET teachers, the training materials were developed through needs analyses. The content aims to fill actual gaps in IoT and digital literacy thanks to its participatory approach. The materials were created in a variety of formats, including presentations, exercises and tutorials, and they were incorporated into the the Hybrid Solutions Lab, a hybrid ecosystem that blends digital learning using the WaziLab platform with in-person sessions at the physical IoT labs within the VET institutions.

The training covers three pillars that form the foundation of the program:

1. **Technical Modules:** This covers IoT basics like sensors, microcontrollers, cloud computing, mobile app development, power supply design, and Bluetooth communication are covered in the technical modules.
2. **Pedagogical Modules:** These modules strengthen hybrid learning approach and interactive teaching by focusing on digital teaching tools such as Moodle, Canva, H5P, Mentimeter, Kahoot, and Miro.
3. **Entrepreneurship Modules**: These modules prepare trainers to empower students by fostering innovation and employability. These entrepreneurial modules introduce design thinking, business models, market analysis, and financial management.

Why it matters

The success of the VocalizeIoT project using IoT education in vocational centres to promote innovation and employability, depends on having teachers who are well trained. By equipping VET employees with technical, digital teaching, and entrepreneurial skills, these new training materials close the gap between technology and the classroom. This matches training to the demands of the local industry, and fosters long-term sustainability.

By converting the investment in labs, infrastructure, and curricula into employable skills, innovation, and employment opportunities for young people, the training materials therefore form the foundation of VocalizeIoT's goals.

Lessons Learnt

Feedback from previous training sessions at The Nairobi National Polytechnic in Kenya and VETA Kipawa in Tanzania emphasized the value of gradual skill development, strong instructor support, and the focus on localisation. Future versions are expected to incorporate teacher-developed materials from IoT short courses, improve technical modules, and add more entrepreneurial content.

Moving Forward

The VocalizeIoT project guarantees that VET centres are not only users of digital technologies but also promoters of innovation and job creation by enabling educators. By preparing students for opportunities in a rapidly digitizing economy, the introduction of these training materials signals the start of a scalable model for delivering IoT skills throughout Africa.

VETA KIPAWA LAUNCHES ITS FIRST AND SECOND VOCALIZEIOT PILOT TRAINING COHORTS IN TANZANIA

The much-anticipated Train of Trainer and pilot training experience in Tanzania has had a significant impact on the VocalizeIoT project in 2025. This experience, through the European-funded project, has effectively integrated IoT education and skills into Tanzania's vocational training programs. A total of 15 VET instructors from various VET institutions, received training in IoT concepts and training techniques during the Train of Trainers (ToT) sessions, hosted by VETA Kipawa at the ICTC (Information Communication Technologies Commission) center in Dar es Salaam. This took place from 21st to 23rd January 2025.

In addition, as part of the VocalizeIoT partners, **ENGIM** supported 27 teachers from various institutions at VETA Kipawa and TNNP through the provision of digital classroom and online training platforms to enhance the digital teaching experience. The topics covered included: the blending of teaching methods, virtual classroom facilitation and instructional design using digital platforms.

It is attestable to say that the trainers successfully advanced their knowledge of digital pedagogy and Internet of Things technologies. This was evident as they were able to acquire skills in practical, competency-based training that satisfies the requirements of modern industrial environments.

Training started on 27th February and September 15th 2025 for the first and second cohorts respectively. In total, 120 applications were received with 35 and 36 students selected to participate in the first and second cohort of the IoT short course respectively. 23 of the total number of selected participants were females. In addition to a focus on theoretical knowledge, this hybrid learning mode advanced to a mastery in IoT prototyping, sensor/microcontroller board integration as well as data visualization. The trainees developed prototypes that address real-life community challenges. This displayed VETA's role as an innovation and creativity centre.

Later on in September 2025 at VETA Kipawa, more students were trained in various IoT modules such as Design thinking, Power supply, Sensors and Actuators, Microcontrollers, PCB Design, IoT cloud architecture and communication protocols.
By the end of the training the students were able to: design and implement IoT solutions for various applications, develop IoT-enabled prototypes using appropriate sensors, actuators and communication technologies, analyze data collected from IoT devices and interpret the insights for decision making, address scalability and performance challenges in large scale IoT networks, work effectively in cross functional teams to deploy IoT solutions in real world scenarios, compete in a hackathon. To wrap up the training sessions, trainees went on a field trip to **University of Dar es Salaam (UDSM) COICT Lab.**

Why It Matters: Through the provision of **industry 4.0** (or fourth industrial revolution) skills in IoT technologies promoting **innovation, employability, training skills, entrepreneurship** to trainers and students, this initiative not only promised long-term sustainability but also aligned with Tanzania's digital transformation agenda. To prepare it for a broader institutional adoption, the VET Learners IoT curriculum was examined and brought into compliance with VETA's International standards.

Currently, according to the **National Council for Technical and Vocational Education and Training (NACTVET)**, Tanzania is home to more than **1335 TVET institutions**, consisting of **471 technical institutions**, **809 vocational institution**s and **55-Fold Development Colleges**. This pilot is expected to impact these institutions in future.

Even though a few obstacles were encountered during the training such as internet connectivity challenges and limited supply of IoT hardware kits, this pilot training has demonstrated its transformative potential. The VocalizeIoT project, through this pilot, has shown scalability through the integration of digital pedagogy, entrepreneurship and technical skills to vocational training experiences.

The Way Forwad: As we perceive the future, the VocalizeIoT calls for expanded training across more VET centres, unlimited internet access and IoT hardware kits as well as stronger partnerships with industries to aid in the transformation of students' prototypes into marketable solutions. By transforming Tanzania's trainers and trainees into innovators of technology, the VocalizeIoT is creating a pathway for digitally empowered workforces ready to thrive and sustain the **industry 4.0 revolution.**

HIGHLIGHTS FROM VETA KIPAWA AND TNNP HACKATHON EXPERIENCES

During training experiences, learners at **VETA Kipawa (Tanzania) and TNNP (The Nairobi National Polytechnic)** took part in hands-on IoT hackathons that transformed blended learning into real-world innovation. Through prototyping, industrial exposure, and continuous assessment, learners developed practical solutions aligned with local needs and the digital and green transition.

Learning Through Prototyping

What was essential for learners was acquiring design thinking skills in preparation for them to venture into prototyping and hackathon activities. After completing blended three-month IoT short courses, learners at both institutions worked in small teams to design and build **Minimum Viable Products (MVPs)** using microcontrollers, sensors, actuators, and open-source platforms. Projects addressed real challenges in smart agriculture, energy efficiency, environmental monitoring, security, and automation.

At VETA Kipawa, teams focused on agriculture and sustainability-driven solutions including smart greenhouse monitoring, livestock health wearables, and water and energy monitoring systems in Tanzania. At the same period, TNNP learners developed sensor and actuator based solutions including smart security systems, home and institutional automation, and environmental sensing applications in Kenya.

Assessment, Pitching and Recognition

Assessment, Pitching and Recognition

Learning progress was reinforced through regular quizzes, practical assessments, and performance-based evaluations. Hackathons concluded with pitching sessions where teams demonstrated working prototypes to panels of instructors and external stakeholders. Projects were assessed on innovation, technical execution, relevance, teamwork, and presentation quality. Certificates and awards recognised outstanding teams.

Why it matters

The combined experiences at VETA Kipawa and TNNP show how blended learning, prototyping, industrial exposure, and structured assessment can bridge the gap between vocational training and labour market needs. Through VocalizeIoT, learners are developing future-ready IoT skills while contributing to the digital and green transition in East Africa.

At a Glance

- **141 VET Learners trained across Kenya and Tanzania**
- **23 unique and functional IoT prototypes developed**
- **4+ hackathons / bootcamps delivered**
- **At least two Successful industrial & field visits conducted**
- **Hands-on, project-based learning approach**

THE NAIROBI NATIONAL POLYTECHNIC EMPOWERS A NEW WAVE OF IOT INNOVATORS

The Internet of Things (IoT) is influencing a variety of industries, including sustainable smart cities, smart agriculture and cutting-edge healthcare globally. Contributing to this trend, The Nairobi National Polytechnic (TNNP) from February to May 2025 successfully held its first ever three-month short course as part of the VocalizeIoT initiative's goal to close the digital skills gap.

The purpose of this program is to equip TVET (Technical Vocational and Education Training) students, ICT, engineering trainees, educators, entrepreneurs and professionals with both theoretical and practical hands-on experience with IoT technologies. The program supports a competency-based education approach aligning with industry 4.0 demands, preparing graduates to innovate and positively impact various industry sectors such as agriculture, healthcare and manufacturing with automation.

How the Training was Conducted

At TNNP, the training sessions were conducted over a period of **10 weeks**, where sessions were held three times a week on Mondays, Wednesdays and Fridays each lasting for **3 hours** culminating to a total of **90 contact hours.**

Modules covered by participants touched on various topics on IoT basics on sensors, actuators, microcontrollers, PCB design, cloud architecture, communication protocols and cyber security. Through the WaziLab IoT platform, the training sessions combined in-person training with cloud-based simulations that helped participants gain practical skills with industry-based tools like Arduino, ESP32, Python and CAD (Computer Aided Design) software.

The course culminated in creative student-led projects addressing practical community needs such as the development of an IoT-based home security system for safety, a greenhouse temperature and humidity monitoring system and a smart irrigation system for agriculture sectors.

The program also incorporated refresher modules of which, extra resources were acquired, and offline simulation tools were integrated despite unavoidable challenges faced like the low number of hardware kits and internet connectivity issues. The adaptability to these unavoidable circumstances ensured that students excelled in their activities.

Major Highlights Achieved

- 12 teaching materials with an additional 21 extra in collaboration with project partners
- High enrollment: 93 participant enrollment - 23.8% female and 76.2% male
- High engagement: 70 VET learners trained across 2 blended IoT short-course cohorts
- Hybrid delivery model combining in-person lab sessions and online learning via WaziLab
- 5 core IoT modules delivered, covering sensors, communication, cloud, security, and programming
- Fully equipped Hybrid Solution Labs with industry-standard IoT boards, sensors, and tools
- 2 design-thinking hackathons conducted
- 11 functional IoT prototypes developed addressing smart agriculture, energy, environment, security, and smart cities
- 100% of the selected participants completed the program.

ENGIM LAUNCHES TOOLS AND METHODS FOR DIGITAL TEACHER TRAINING

ENGIM (Ente Nazionale Giuseppini del Murialdo) has made the bold step to enhance the organizational, methodological, and pedagogical capabilities of partner VET centers in Tanzania and Kenya as part of the VocalizeIoT project. To equip VET teachers and staff with useful skills for digital and blended learning, ENGIM launched an intensive online course called **"Methods and Tools for Digital Teaching"** from **February to March 2025.**

The course consists of **12 online sessions,** each lasting **90 minutes** that were conducted on Fridays during that period. It also supported the new IoT Digital Transition Curriculum, using presentations and materials for both live and online training sessions. The ENGIM training instructors were Roberto D'Amato and Abramo Tognato.

How Training Was Done

Trainers introduced a wide range of tools including Moodle, H5P, Lumi Education, Canva, Prezi, Padlet, Kahoot, Miro, and AI-based voiceover platforms, during the 12-session program that blended theory with practical application.

Each session presented how these tools could revolutionize the means at which teaching is delivered in a classroom. This was done through guiding trainees in developing dynamic lessons, captivating multimedia content, and more effective support for a wider range of learning preferences. Each session was also recorded and made into a step by step video tutorial for reuse and self paced learning

Impact on Participants

VocalizeIoT's goals of modernizing VET institutions to satisfy the demands of developing IoT technologies and digital education are directly advanced by this dual focus on capacity building and curriculum co-creation.

ENGIM mentored VET teachers in creating slide decks and lesson plans that could be used in both live and virtual settings, supporting the adaptation of the Waziup curriculum template to their local contexts

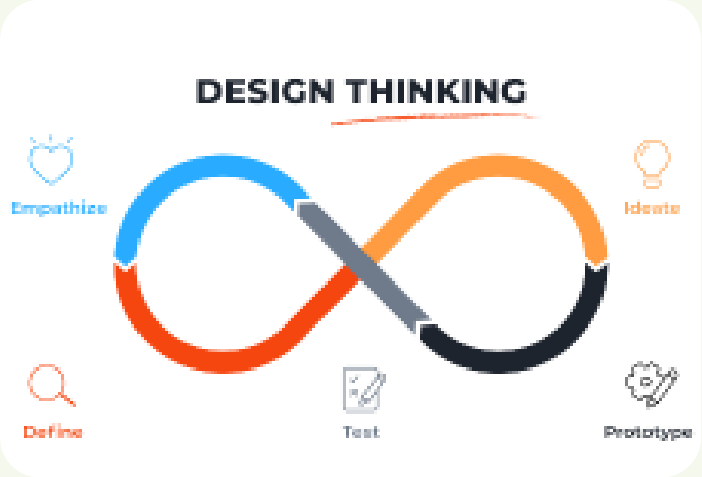
During the training, despite scheduling challenges with other coinciding training programs, engagement levels remained high. Participants reportedly found the user-friendly platforms like Canva, Kahoot, and Miro rather appealing, to the sense that they incorporated them into their learning activities. Several educators continued to use the training platform after the end of the course and sought specialised support for their teaching materials. This demonstrates the training's impact and relevance.

Feedback from participants

TNNP participants attested to the program's excellent fit with regional requirements. To formalize the learning process, the participants proposed issuing certificates of attendance. They also suggested ways to grant access to premium versions of essential tools to unlock more advanced features of the learning platform.

DESIGN THINKING CONCEPTS: WAZIUP SHARES INSIGHTS

To ensure innovation responds to real community needs, VocalizeIoT partners; including ENGIM, VETA Kipawa, Dar Teknohama Business Incubator, The Nairobi National Polytechnic (TNNP), WaziUp and Strathmore University have integrated design thinking and rapid prototyping into their training activities. Through short IoT courses and hands-on lab sessions, trainees are learning to develop practical, user-centered solutions that can be tested and refined for real-world impact.



Why embrace design thinking?

Essentially, design thinking is a human-centered technique that employs an iterative process to solve problems by first thoroughly comprehending the needs of a user, then developing, testing, and improving solutions via cooperation, empathy, and creativity. Using a designer's toolkit to address user needs, define problems, generate ideas, build and test prototypes, and various solutions to user needs, this iterative process is helpful for innovation and problem solving.

As VocalizeIoT expands IoT training in TVETs, colleges, and through WaziLab, design thinking offers a proven track record of user-centred frameworks. It helps educators to structure challenges clearly before jumping straight into solutions. It also helps understand the needs and requirements of students, institutions and communities through research, surveys, and stakeholder interactions. And finally, it helps generate and refine innovative ideas that are practical, doable and inclusive.

BRINGING IDEAS TO REALITY: PROTOTYPING

Ideas, or concepts as you wish to call them, are transformed into physical models through the process of prototyping. Early functionality testing is the goal of any prototype be it a physical product (using 3D modelling techniques, circuit design, early builds) or a service, using drawn sketches, wireframes and digital mock-ups with program applications like Figma or Adobe XD). Lastly, the loop is closed by testing and feedback. Prototypes undergo stress testing, standard validation and interactive refinement after placing them in actual use-case environments.

KEY TAKEAWAYS

Prototyping and design thinking give innovators a strong foundation to develop solutions that have real value to the user. We can go from concepts to significant outcomes by understanding users, their pain-points and framing issues methodologically and conducting practical testing of ideas in the form of tangible user-centric prototypes.

> *It is evident that many projects lacking design thinking end up falling short of meeting real user needs. This results in low adoption, resource waste and lost opportunities for innovations. Therefore, teams can discover hidden issues and develop useful, significant solutions by focusing on users first.*
>
> *~ Prince Banini, Waziup*

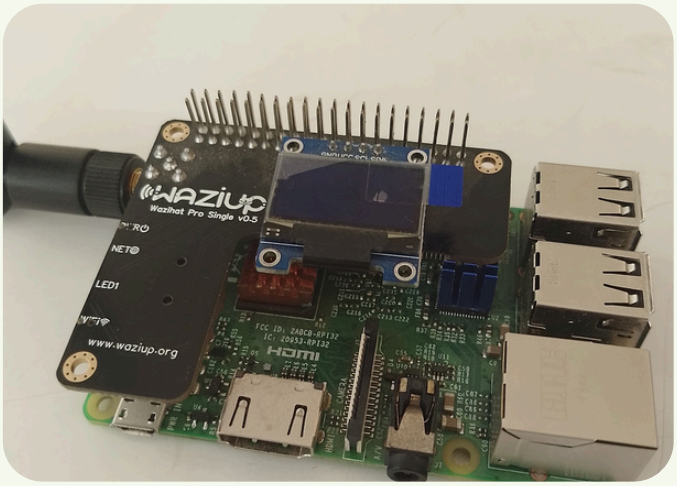
MMU IOT DAY LIGHTS UP THE PATH FOR SMART TECHNOLOGY ADOPTION

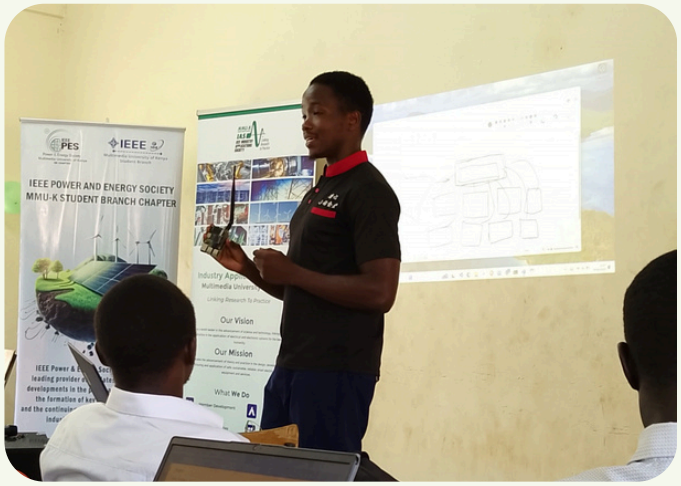
April 9th, 2025, marked a special IoT day for the future of smart innovation in Kenya as **Multimedia University (MMU)**, in collaboration with the **IEEE Photonics Society** and VocalizeIoT partner **WaziUp**, hosted a dynamic and hands-on IoT Day.

With over **30 students** and young professionals in attendance, the event provided more than just a technical workshop. It was a launchpad for future changemakers in Africa's digital ecosystem where students learned to use the **Wazilab platform and sensors.**

Spearheaded by Sheila from WaziUp, who coordinated IoT activities at MMU, the day began with an engaging networking activity, where participants shared their names, academic backgrounds, and a fun fact about themselves. This helped set a warm and open tone for the day.

The sessions that followed offered both inspiration and practical insights. Joseph Shitote, a seasoned software developer from WaziUp, gave an exciting overview of the VocalizeIoT project. This is an EU-funded initiative that began in 2015 to democratize Internet of Things (IoT) access across Africa, he explained.





Shitote intrigued participants by breaking down technologies including the virtual **WaziLab platform, WaziDev boards, WaziHub Gateway, and LoRa (Long Range communication)**. Even in regions without internet access, these technologies are useful for helping young innovators create sensor-based solutions, such as smart farming systems and air quality monitors.

Continuing with the momentum of discussions, Oliver from waziup's development team demonstrated how IoT applications, such as using sensors to monitor humidity on farms, can bring immediate tangible benefits. His deep dive into the WaziDev board and LoRa technology demonstrated not only how data can be transmitted over vast distances with low power but also the creative potential of deploying sensor-based solutions in underserved areas.

After the presentations, students were placed in groups of six. A practical hands-on session helped participants gain hands-on experience. They configured WaziDev boards using the **Arduino IDE (Integrated Development Environment)**. By walking through a real project setup consisting of **DHT (temperature-humidity) sensors,** they gained firsthand experience with tools that are actively shaping the future of automation, environmental monitoring.

As a strategic investment in local capacity-building for IoT adoption, this event proved to be more than just a workshop for VocalizeIoT. As an event, it was part of a journey to close the talent-opportunity gap at a time when the world is becoming more reliant on data-driven technologies. The event encouraged youth to develop solutions for their own use, their communities around them while opening doors for entrepreneurship, employability and igniting innovation locally.

The **MMU IoT Day** was, in fact, evidence that young people can spearhead the next wave of global tech innovation if they are given the proper resources, guidance, and community support.

HOW MATHS CONTEST SPARKED INTEREST IN 120 STUDENTS TO VENTURE INTO VOCALIZEIOT COURSES

On Saturday, 31st May 2025, what began as a visit to the 16th Annual Mathematics Contest at the Moi Kabarak High School in Nakuru, turned out to be a powerful outreach moment for VocalizeIoT.

The event hosted in the school had more than 500 students from 24 various secondary schools. Over the past 16 years, Moi Kabarak High School has actively engaged in mathematics competitions, with students participating in both local and national events through the years including representing Kenya internationally in competitions like the International Mathematical Olympiad.

In a new twist of events, this contest turned into an opportunity for @iLabAfrica representing VocalizeIoT and Strathmore University admin team to engage with talented future tech innovators. The visiting team showcased academic programs, networked with program officers and awarded two scholarships to top performing high school students of the Maths contest hosted at the school.

The Event setup

The event at **Moi High School Kabarak** began at 8:00am where students in the Math contest did the exams in designated classrooms within the school's premises. What followed was marking transcripts up until late afternoon, as well as determining the winners of the contest. Meanwhile, students not directly participating at the venue were entertained by fun and games in the field away from the classrooms as they waited for the results and winners to be announced.

The Strathmore tent was pitched by 10:00am in the open field. Students from various schools curiously flocked around the tent to gather more information about what was showcased. Under the tent, they interacted with university representatives who showcased academic programs and introduced **@iLabAfrica's** VocalizeIoT short courses that incorporate Robotics & IoT Innovation, Introduction to IoT & Embedded Systems and a mastery of IoT System Development.

Despite having only 40 flyers, more than **120 students** signed up to receive more insights about the courses offered. This gave @iLabAfrica, Strathmore a chance to inform them further about the WaziLab and other IoT short courses designed for their level of education. This demonstrated keen interest in technology training for teenagers. The team emphasized flexible course options that align with school holidays and the value of beginning tech training even before university.

Why it Matters

This outreach visit aligned with the VocalizeIoT consortium's goal of expanding the program's reach to **TVET institutions** and youth engaged in the **CBET curriculum**. In previous events, including the VocalizeIoT Train of Trainers session in October 2024 and April 2025 consortium meetings hosted by **@iLabAfrica**, participants were encouraged to expand their networks through various platforms such as social media (e.g., LinkedIn), internet, meetings, and in-person engagements.

For learning institutions, the consortium encouraged the introduction of IoT training modules, including that of the basic level focusing on **IoT introduction, microcontrollers, sensors, cloud architecture, IoT protocols** and advanced and intermediate levels that consist of advanced **IoT programming, gateways and project Development.**

BUILDING A TVET ECOSYSTEM THROUGH IOT EDUCATION READY FOR THE FUTURE

The VocalizeIoT consortium has officially sent an application to the TVET Curriculum Development Assessment and Certification Council (CDACC) with the goal to have its new Vocational IoT Curriculum for VET students in Kenya and Tanzania certified.

This comes after a previous needs assessment IoT program survey done by VocalizeIoT consortium in 2024. In Kenya and Tanzania, surveys regarding the integration of IoT into existing TVET courses were carried out. Among 15 institutions in Kenya institutions surveyed, participants were asked if IoT was part of the main curriculum or an extracurricular activity. Half (50%) said no, nearly one third (28.6%) said yes, 7.1% said it was not currently taught, and the remainder stated that IoT is integrated into one or more existing curricula. So, this application is a significant step towards the process of standardisation, accreditation and localisation of the IoT training across technical and vocational institutions (TVETS) in Kenya.

Who is involved?

VocalizeIoT consortium partners include **WaziUp (Germany), The Nairobi National Polytechnic (Kenya), VETA Kipawa (Tanzania), ENGIM (Italy), Strathmore University's @iLabAfrica (Kenya), and Dar Teknohama Business Incubator (Tanzania).**

Under the support of European funding, the VocalizeIoT consortium brings together VET providers, youth innovation hubs and IoT technology expertise to provide TVET centres with the resources and skills required to adapt to a rapidly changing digital environment.

By combining technical IoT competencies such as gateway setup, sensor programming, cloud architecture, data visualization, and AI for IoT with modules on entrepreneurship and business development, the proposed VocalizeIoT Curriculum fills a significant skills gap.

WHY IT MATTERS

This strategy ensures that training is in line with Kenya's Vision 2030, the National Digital Master Plan, and the Bottom-Up Economic Transformation Agenda by directly responding to labor-market findings from 16 businesses in industries including manufacturing, energy, water services, and automobile sales.

Through WaziLab, an online platform for IoT learning and lab management, and physical labs furnished with open-source hardware, software, and cloud tools, the curriculum also presents a novel hybrid learning model. Even in environments with limited resources, this dual strategy allows for rapid capacity-building and practical training.

By applying for CDACC accreditation, the consortium aspires to ensure national standards, make it easier for TVET institutions to adopt, and provide graduates with access to international opportunities, such as Germany's industrial ecosystem, in addition to the Kenyan and Tanzanian labour market.

WAY FORWARD

The consortium has requested that CDACC speed up its review process, with a pilot implementation date set to take place this year 2025. The consortium has acknowledged its preparedness to work closely with CDACC on compliance, occupational standards, and pedagogical requirements. The vision of VocalizeIoT which is a standardized, certified, and flexible IoT curriculum that equips Africa's future generation of innovators, is emphasized by this cooperative endeavour.

INDUSTRY EXPOSURE: VOCALIZEIOT TNNP SECOND COHORT OF TRAINEES VISIT TO KONZA TECHNOPOLIS

In September 2025, The Nairobi National Polytechnic (TNNP) launched its second three-month training program with a new twist: Its VocalizeIoT Cohort two learners took learning beyond the classroom with an immersive visit to Konza Technopolis which is Kenya's flagship smart city. From the Automated Waste Collection and Water Reclamation Plants to the Kenya Institute of Advanced Science & Technology, the Konza Experience Centre, and the National Data Centre, students saw firsthand how IoT, automation, and smart systems power modern infrastructure.

The purpose of TNNP's training program is to equip TVET students, ICT, engineering trainees, educators, entrepreneurs and professionals with both theoretical and practical hands-on experience with IoT technologies. Like its first training program, this second program supported a competency-based education approach aligning with industry 4.0 demands, preparing graduates to innovate and positively impact various industry sectors, manufacturing with automation. Learners were also able to compete in hackathons which helped them gain practical experience in prototyping.

The Way Forward

At VocalizeIoT, industry engagement continues to remain core to our mission because it helps learners see real IoT applications shaping smart cities, understand how digital systems integrate in complex environments, get inspired by real innovation and career pathways, align training with current and future market needs, boost employability through practical, context-rich learning

A big thank-you to **Konza Technopolis** for opening its doors and helping our learners connect theory with tomorrow's technology!

VOCALIZEIOT LAUNCHES FIRST WEBINAR SERIES

From **6 November to 11 December 2025,** the VocalizeIoT 4-part Webinar Series successfully brought together educators, students, innovators, and industry professionals to explore how the Internet of Things (IoT) can transform TVETs and higher learning institutions across the region.

This intervention is especially timely as youth unemployment remains a pressing challenge in East Africa. In Kenya alone, youth make up 35% of the population yet face unemployment rates as high as 67%, according to the Federation of Kenya Employers. While new jobs are created each year, many are informal, and limited exposure to emerging technologies such as IoT continues to widen the digital divide within education systems. Against this backdrop, the webinar series reaffirmed the vital role of TVET institutions in preparing learners for future-ready careers.

Key Highlights From the Webinar Series

- **IoT transforming TVETs and higher education:** The first webinar highlighted how IoT enhances vocational learning through collaboration, hands-on approaches, and industry-aligned curricula
- **From skills to careers and impact:** The second webinar showcased real innovation journeys demonstrating how practical IoT skills enable entrepreneurship, employment, inclusion, and community-driven solutions.
- **IoT for smart campuses and utilities:** The third webinar focused on IoT-enabled utility management, showing how smart meters and sensors reduce water and energy losses, cut costs, improve sustainability, and build practical skills.
- **Embedding IoT in vocational training:** The final session held on 11th December emphasized project-based learning, digital fabrication, and open-source tools to equip trainers and youth with relevant IoT, technical, and soft skills for employability.

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
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Sincerely yours,
VocalizeIoT Project Team

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