THE YAMORANSA MODEL LABS PROGRAM

THIRD QUARTER REPORT
July - September 2022

This report was prepared by IMPLEMENTERS

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Content:

ACKNOWLEDGEMENT

The Yamoransa Model Labs Program

www.yamoransamodel.org

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This project is managed by Implementers with TECHAiDE as technology partner.

Key Takeaways from the Quarter

01

The Yamoransa Model (YM) Labs provide opportunity to students to explore other creative activities using the equipment in the Makerspace Lab.

02

The major parts of the quarter was for long vacations coupled with few weeks of industrial actions by teachers hence a decrease in lab visits.

03

Students took advantage of the school's vacation to partake in various robotics boot camps organised at their respective labs.

04

The various District and Municipal Directorates of Education are visibly utilizing the labs for the advancement of Teacher Improvement Programs as well as other educational activities.

Highlights
of the quarter

YM Lab 1,
Yamoransa Central Region

Number of Lab Visits in Q3: 1621 Students (Male: 784; Female: 837)

- About 98% of learners who use the lab can now use almost all the software on the computer without the teacher's guidance. They have become very innovative and great initiators.
- For the personal studies of students, they use the E-Test software on the ASANKA device to test their questions answering skills.
- Students have built critical thinking skills.
- The center also serves as a training hub for other organizations in the community.
- Senior High Schools book to visit the lab to have a feel of the robotic equipment in the Makerspace Lab.

YM Lab 2,
Mallam-Gbawe, Greater Accra

Number of Lab Visits in Q3: 665 Students (Male: 316; Female: 349)

- **The Lab organized their annual robotics competition for the year.**
- **The YM Lab now has extended its service to the municipal education directorate for the training of teachers.**
- **The lab welcomed two more schools that will use the EDULab and Makerspace for lessons.**
- **With the exposure of robotics to the students, they have designed various projects to exhibit during the Opening Day ceremony where they invite parents to have a first experience of their academic activities and exploits.**

YM Lab 3,
Ejura-Sekyeredumase, Ashanti Region
Number of Lab Visits in Q3: 681 Students (Male: 316; Female: 365)

- **Students and Teachers showed greater interest in using the lab.**

- **The final year students in the Junior High Schools used the pass questions featured on the ASANKA for exams preparation with their teachers.**

- **Before the establishment of the lab, the students did not have confidence in using computers, however, with the introduction of the YM Lab they have gained great confidence in exploring technological equipment. The students have become very proactive and smart.**

YM Lab 4,
Choggu, Northern Region
Number of Lab Visits in Q3: 1018 Students (Male: 398; Female: 620)

- **Pupils from Abe Halperin JHS, a private school, got the opportunity to visit the lab for the first time to use the ASANKA Device. They watched videos on the digestive system, capacitor, life cycle of a mosquito, solar system, dentition, science-related industries, volcanic eruption, and earthquake.**

- **Pupils were taught the interface of Microsoft word. At the end of the lesson, pupils were able to identify and explain the features of Microsoft Word as well as do basic tasks like typing, editing, and formatting a text, copy, cutting and paste in MS Word.**

- **Students were able to use the drawing tools to draw their own shapes.**

YM Lab 5,
Kyebi, Eastern Region
Number of Lab Visits in Q3: 1002 Students (Male: 502; Female: 500)

- Basic School students were able to use Microsoft Word to design a sample report card.

- Students have been introduced to Powerpoint and have advanced the use of MS Word.

- The lab serves as a training hub for other organizations.

- Students are to assemble and program the EV3 Leggo robots.

YM Lab 6,
Peki-Avetile, Volta Region
Number of Lab Visits in Q3: 2048 Students (Male: 1050; Female: 998)

- Class two students were given the opportunity to visit the lab. They were taught how to launch various programs on the computers at the EDULab with little to no assistance.

- Lab organized training sessions for 123 teachers in Excel, Arduino and Ozobot.

- The lab has instituted student trainers who partake in training activities of the lab.

- The lab recorded great patronage in spite of strike actions by teachers.

YM Lab 7,
Nkonya-Ahenkro, Oti Region
Number of Lab Visits in Q3: 548 Students (Male: 315; Female: 233)

- Basic 2 teachers took advantage of the ASANKA device to hold interactive classes with the pupils. One of the subjects explored was in Natural Science on the Topic "Animal Classifications ". The pupils were taught using the educational videos and pictures.

- Basic 9 students can use the EXCEL application on their own.

- Basic 7 students can create file extensions now.

- Basic 8 students understand basic storage media and devices.

- More so, the Department of Agriculture of the District Assembly organized an extension training program and STEP Down Training On Web Based reporting at the EDULab.

YM Lab 8,
Prestea-Bogoso, Western Region
Number of Lab Visits in Q3: 2926 Students (Male: 1164; Female: 1762)

- The lab's conference room hosted the District Directors of Education within the Western Region.

- The lab held vacation classes for students between the ages 8 -10 ages on scratch and EV3 Lego programming.

- The lab is used by the Municipal Education Directorate for teacher advancement training program.

- The lab recorded the highest lab visits amongst all existing 12 YM Labs.

YM Lab 9,
Bomaa, Ahafo Region
Number of Lab Visits in Q2: 2094 Students (Male:960, Female: 1134)

- The lab hosted government training sessions for 50 Junior High School (JHS) teachers as part of the One-teacher-One Laptop projects.

- The Lab has began mobile sensitization of the schools on the facilities in the center. Center Managers visited the lab with some of the items printed using the 3D printer as well as the Arduino and Ozobot equipment.

- The lab has also begun training of students.

YM Lab 10,
Tuobodom, Bono East Region
Number of Lab Visits in Q3: 1018 Students (Male: 398; Female: 620)

- The lab trained primary teachers on the usage of the lab and it has improved the usage of equipment and interest in using the lab for teaching and learning.

- There has been a positive mindset growth of students since the inception of the lab about a year ago.

- The lab has reached an agreement with GES on the usage of the lab and internally generating funds for the lab's maintenance and sustainability.

Highlights of the quarter from the Senior Schools

YM Lab in Gambia

Number of Lab of Visits in Q2: 1241 Students (Male: 286, Female: 955)

- Some students are able to use the scratch app to create animations, games and write stories

- The lab was closed for West African Secondary School Certificate Examinations (WASSCE) and vacation as most part of the quarter was vacation period for secondary schools in Gambia.

YM Lab 3.1,

Asare Bediako Senior High School, Adansi-Akrokerri, Ashanti Region

Number of Lab Visits in Q3: 564 Students (Male: 253; Female: 311)

- The serves the whole schools for ICT practical sessions, which is gradually encouraging students interest in ICT. and robotics.

- Students have progressed by perfectly being able to use HTML for web programming.

- With the presence of a projector in the lab teaching is now very efficient as students are able follow practical sessions easily.

MAKING A DIFFERENCE IN SENIOR HIGH EDUCATION IN GHANA

From 7:1 to 1:1 ratio of students to computer access

Asare Bediako Senior High School is public Senior High School (SHS) in Ghana located in an agricultural community in Adansi Akrokerri, Ashanti Region of Ghana. The 27-year-old mixed Senior High School (ie. admits both male and female students) with a population of about 1, 300 runs various courses such as General Science, General Arts, Home Economics, Agriculture and Business.

Though the school has been in existence since 1993, it lacks a number of resources for effective teaching and learning including an ICT Lab.

Through the initiative of Mr. Charles Amponsah, a teacher in the school, the school was selected to receive the Yamoransa Model Labs as the first senior school to benefit from the program. The school has now been equipped with a state of the art ICT Lab called the EDULab. In addition to this, the school also received a well resourced Makerspace Lab as part of the YM Labs model package. The Makerspace is to help the teaching and learning of robotics and machine learning.

Before the YM lab, the school had 20 computers where only 6 were functional hence, with the average class size of 40, about 6 students had to gather around one computer during practical lessons. This was not effective and efficient and did not encourage teaching and learning. Also, the school could not vary the elective subjects being offered by the science department. Teaching of ICT was very theoretical and abstract, hence, teachers were not enthused to teach ICT.

With the establishment of the YM Lab in the school, teaching and learning of ICT has become more practical. Now the student ratio to computers is one student to one computer with two computers for teachers and a projector. The EDULab consists of 50 computers, 48 for students and 2 for teachers, a projector and their respective suitable tables and chairs. The labs have audio support hence students can access audio educational materials using the headphones provided in the lab. The Makerspace on the other hand contains Virtual Reality, 3D design and printer, Arduino, laptops and EV3 Lego kits for practical robotic lessons.

The Impact

The impact of the establishment of the YM Lab has been enormous in this school. Now the school has confidently introduced ICT as an elective subject in the Science department where currently 12 first-year students have enrolled. Teachers are also able to project their illustrations during lessons.

From
7 students : 1 computer
to
1 student : 1 computer.

The EDULab has supported the teaching and learning of the use of various applications such as Publisher, Spreadsheet, Qbasic programming, Word processing, HTML Web programming and designing. These are requirements in their academic syllabus but without the EDULab the school could not have offered such practical lessons.

Now, teaching and learning is very interactive and practical. The school has also become attractive to the community members as a suitable school to train their wards.

Asare Bediako SHS really appreciates the YM Lab from Helping African Foundation (HAF).

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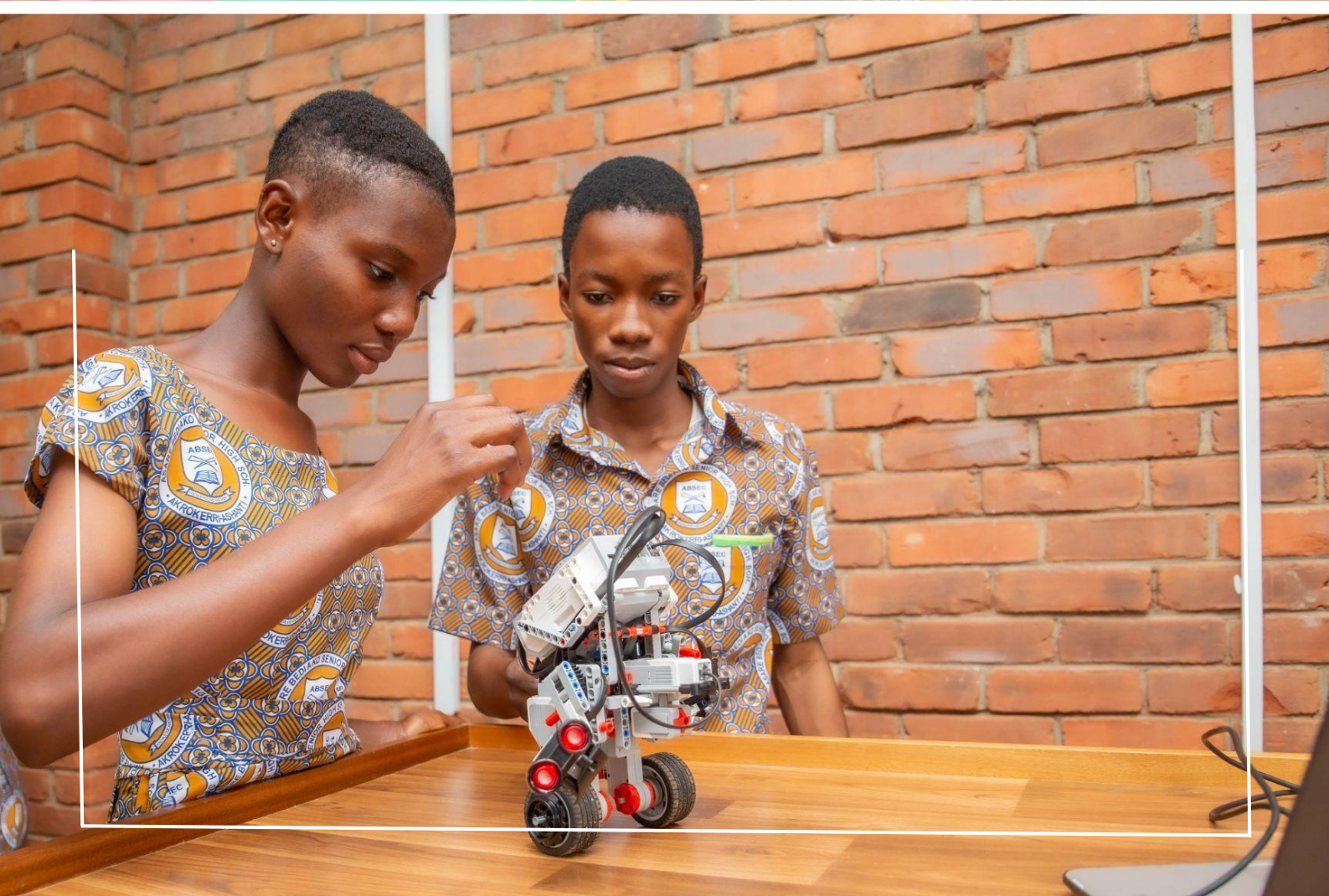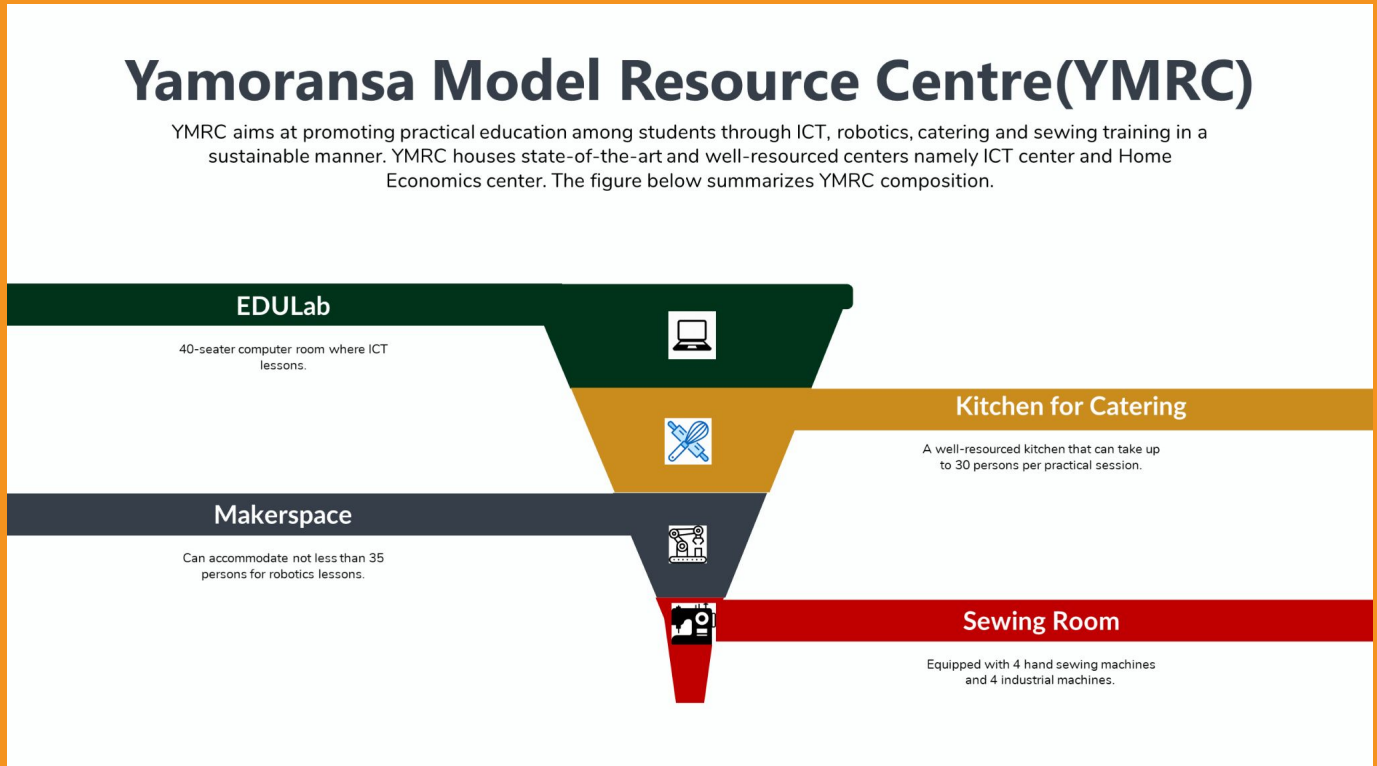
Photos from the Dedication Ceremony of YM Lab 3.1 at Asare Bediako Senior High School in Adansi-Akrokerri, Ashanti Region in 2021.

SPOTLIGHTING THE MODEL LAB: YAMORANSA MODEL RESOURCE CENTER (YMRC)

Yamoransa Model Resource Center hereinafter YMRC is a community-based non-governmental, non-profit commercial organization located in the Yamoransa community of the Mfantseman Municipality of the Central Region. YMRC, which commenced operations in the year 2016 as an ICT center and later upgraded into a resource center was born out of the yearly research works at the Yamoransa Community; its social laboratory by the Department of Health and Population in the University of Cape Coast. Findings from such research works which were shared with the department's partners led to the coming on board of alumni of Yale University, Friends of Yamoransa (FOY) and Helping Africa Foundation (HAF).

YMRC aims at promoting practical education among students through ICT, robotics, catering and sewing training in a sustainable manner. YMRC houses state-of-the-art and well-resourced centers namely ICT center and Home Economics center. The figure below summarizes YMRC composition.

Yamoransa Model Resource Centre(YMRC)

YMRC aims at promoting practical education among students through ICT, robotics, catering and sewing training in a sustainable manner. YMRC houses state-of-the-art and well-resourced centers namely ICT center and Home Economics center. The figure below summarizes YMRC composition.

EDULab
40-seater computer room where ICT lessons.

Kitchen for Catering
A well-resourced kitchen that can take up to 30 persons per practical session.

Makerspace
Can accommodate not less than 35 persons for robotics lessons.

Sewing Room
Equipped with 4 hand sewing machines and 4 industrial machines.

The EDULab consists of a 40-seater computer room where ICT lessons are held. Makerspace Lab can accommodate not less than 35 persons for robotics lessons per session. The Home Economics Lab at the YMRC is a well-resourced kitchen that can take up to 30 persons per practical session and a sewing lab equipped with 4 hand sewing machines and 4 industrial machines.

YMRC has a governing council known as YMRC-MC that gives policy direction to the resource center. The team at the resource center is led by the General Manager who oversees the day-to-day management of the facility. Each of the centers have Center Managers who manage the lab and support the teaching of lessons. There are other auxiliary workers like a security man, cleaner and an assistant for the Home Economics Lab.

The YMRC serves over eleven public and private basic schools with about 6000 students annually within the Yamoransa circuit enrolled on the YMRC program. Students in and around the Yamoransa community in both public and private schools have access to well-resourced labs for practical lessons giving them the opportunity to acquire soft skills. Apart from lessons, students visit the sewing lab to mend their torn school uniforms. But for YMRC edifice, over 90% of school going children would not have had physical knowledge of computers as well as hands-on usage of computers as most of the schools do not have computer labs. The adolescent Girl Child has a comfortable place that supports hygiene during their menstrual period with the availability of a clean washroom and ironing room.

> " But for YMRC edifice, over 90% of school going children would not have had physical knowledge of computers as well as hands-on usage of computers as most of the schools do not have computer labs.

Teaching of ICT, home economics and sewing have become less cumbersome for teachers as they have the required logistics to pass on the requisite knowledge to students. Teachers also have labs to learn new things, enhance their knowledge and also do self-practicing, which some are utilizing.

The Yamoransa community is benefiting immensely as community meetings are mostly held at the facility. Organized groups like the Ghana National Tailors and Dressmakers Association use the resource center for various activities; weekly meetings and examinations. Individual community members and families host their visitors at the conference hall during funeral events due to the conducive ambience. During social events, community members hire and use the YMRC kitchen for meals preparation. Other stakeholders like the Mfantseman Education Directorate, Mfantseman Health Directorate, Circuit SMC/PTA, Yamoransa Circuit Headteachers Association use the facility for various sector related activities.

Lessons by schools and students at the resource center are absolutely free. In view of this, YMRC engages in some income generating activities as a way of raising funds to support operations and maintenance. Among the activities are rentals of YMRC facilities and logistics to individuals and corporate bodies. Catering services are also offered to individuals and corporate institutions. The broad vision of the YMRC is to be a financially sustainable social enterprise meeting the needs of its stakeholders.

Story submitted by the General Manager of YM Lab 1, Mrs Francisca Delalali Masroh Asuo and edited & adapted for the report by IMPLEMENTERS.

Gallery of YM Lab 1(YMRC), Yamoransa, Central Region

EMPOWERING GIRLS IN ICT

## THE STORY OF A 12 YEAR OLD FROM BOGOSO, WESTERN REGION

As a form 2 student who will be registering for the Basic Education Certificate Examination next year (2023), all I could do regarding I.C.T was *"Turning On and Off"* the computer and do little typing. We had been taught a lot of theory and zero practical. Practical application of what had been learnt was an issue because there was not a single computer in our school, even for demonstration.

One would have thought all hope was lost until in 2021, our school was fortunate to be part of the schools of the newly built Yamoransa Model Lab 8. I fell in love with the facility at first sight with the variety of educational softwares installed and how easy they were for practice for a beginner like me.

Few months later, I got the opportunity to be part of the *Girls in ICT* competition where I was introduced to varieties of I.C.T programs; programming/coding through the use of the scratch application as well as HTML coding. For the first time in my life, I was excited to be a part of an I.C.T initiative in my municipality. Joyfully, I was selected to be part of the 50 girls who qualified to join the ceremony at *Sefwi Wiawso from the Prestea Huni-Valley Municipal.* I was happy like my parents. I won my first laptop through this wonderful program and my limits never ended there.

After the competition, I was further enrolled in a *Robotic* program organized by the Yamoransa Model lab across the country. We were introduced to more advanced coding/programming, robotic kits, and others (*EV3, Arduino, Ozobot, and Oculus Rift/VR).* Among the above, VR was my favorite because it was for educational and entertainment purposes.

I am so happy now because I sometimes tutor my colleagues when we come to the lab. However, I can say that I've benefited from the Yamoransa model lab 8 a lot thus; I can now do simple ICT works; I can now help my dad to use his laptop for office work; It has also helped me in my academic work.
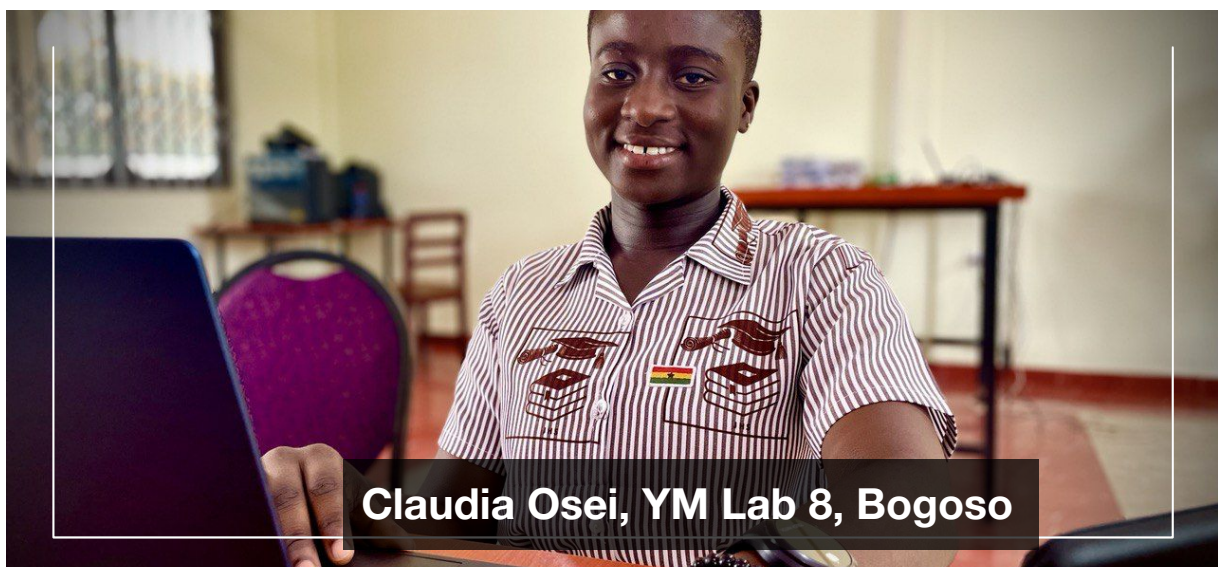
Claudia Osei, YM Lab 8, Bogoso

Based on my current understanding and know-how I can perform other tasks related to my school work and help in my upcoming examination; It has helped me to tread cautiously on the internet without being a victim of fraud.

I was even chosen to give the vote of thanks during the final dedication of the lab in March 2022. This initiative has given me extra confidence when speaking in public. I am now able to express myself confidently when selected to make a speech or say something on behalf of my colleagues.

To conclude, I would like to use this opportunity to thank the leaders who engineered the siting of the lab in Bogoso, Helping Africa, TechAide, and my YM Lab 8 facilitators for helping me gain knowledge in ICT and other programs through the frequent use of the Yamoransa model lab 8.

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Gallery of YM Lab 8, Prestea-Bogoso, Western Region.
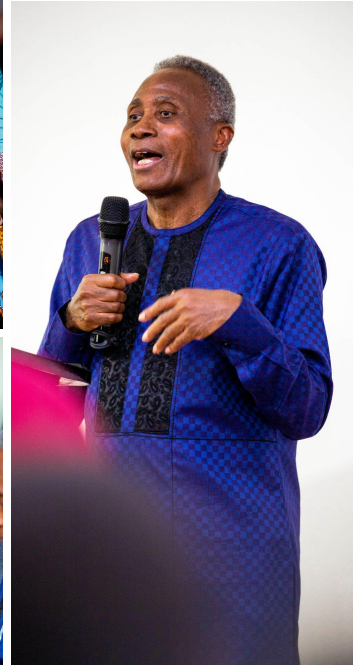
ADVANCING EDUCATION IN EVERY CORNER OF GHANA

The YM Lab 7 Nkonya-Ahenkro, Oti Region.

Yamoransa Model Lab 7 facility which is situated in the Oti region, precisely Biakoye District in Nkonya Ahenkro currently serves a total of five (5) JHS and seven (7) primary schools in the Ahenkro Circuit. With the breakdown of 230 Boys and 268 girls all summing up to 498.

The facility which was dedicated on 19th November, 2020 is managed by a Convener, who is a representative of the Ghana Education Service (GES) and two teachers re-appointed as Center Managers of Lab. The center is made up of a 48-seat EDULab, Makerspace (EV3 Lego, Arduino, VR, MakerBot/3D printer and Ozobot) and a well-furnished conference room all powered by solar.

Before the establishment of the center, the schools in the circuit taught ICT with no practicality. This made teaching ICT a daunting task for teachers and it affected the interest of students. More so, students had zero exposure in programming and robotics.

Two girls exploring the EV3 Lego bots during the lab's dedication in 2020

Selected students contesting at AIRTAD 22 Robotics Competition

Two girls exploring the EDULab during the lab's dedication in 2020

Fortuitously, the Biakoye District was selected out of the many districts in the Oti Region for the YM lab. And this has turned teaching and learning of ICT around with access to resources for practical lessons. The community now has access to this well-resourced center for both ICT and non-ICT related training, workshops for students, teachers, various departments of the district, churches as well as other organizations. To them, now you do not need to go to Accra, the capital city of Ghana, before you can get access to available equipment in the center.

What is more interesting is the fact that teachers and students have the opportunity to be exposed to robotics and programming.

This has given them the opportunity to deeply think of innovative ways of solving some peculiar societal issues of concern to the people of Ahenkro – Locals solving local problems.

Again, not only does the YM Lab serve as a resource center for the community but has given the opportunity to other non-governmental organizations to also contribute the quota in equipping the people of Ahenkro. Example two NGOs, **N**etwork of **P**ractical individuals who are **L**eadership conscious and **E**xcellent in their **C**areer path (NPLEC) Foundation and Africa Foundation for Educational Development (AFFED), have the opportunity to collaborate with the YM Lab to inspire Senior High School (SHS) students on being creative, innovative and entrepreneurially minded.

A display of 3D printed designs from YM Lab during AIRTAD'22

In Focus: Center Managers with Convener from YM Lab 7 at AIRTAD '22

In addition, a governmental organization called Ghana Investment Fund for Electronic Communications (GIFEC) partnered the Biakoye District Assembly to organize Girls in ICT program, which trained 40 selected girls across the district on the topic 'Get Connected and Cybersecurity.

These partnerships also are aimed to help raise funds for the sustainable management of the center after the funding period.

In conclusion, the Biakoye District, especially Ahenkro Circuit, has tremendously benefited from the extension and establishment of the Yamoransa Model Labs. The lab has commenced the inspiration of creativity, innovation and inclusion of the people of Oti Region in the digitization agenda of the government of Ghana and the attainment of the UN's Sustainable Development Goals, especially goal 4 – Access to Quality Education.

> **This has given them the opportunity to deeply think of innovative ways of solving some peculiar societal issues of concern to the people of Ahenkro – Locals solving local problems.**

The Yamoransa Model Labs Program (www.yamoransamodel.org) is managed by IMPLEMENTERS (www.TheImplementers.org). IMPLEMENTERS is a project management nonprofit that partners with charitable organizations, philanthropists to impact society. Visit our website and social media handles for more information.

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TECHAiDE (www.techaide.global), the technology partner of the YM Labs Program, is a technology social enterprise working in Africa for over a decade using ICTs to improve education, support Youth Development and facilitate health delivery.