ETHIO ROBO ROBOTICS
Education & Competition Centre

ROBOTICS LAB ESTABLISHMENT
IN ETHIOPIAN SCHOOLS

INCREASE STUDENTS ENGAGEMENT THROUGH HANDS-ON ROBOTICS

Ethio Robo Robotics Staff

2022/23 African Robotics Championship in Addis Ababa, Ethiopia

Robotics Lab Establishment

To _____

In today's technology-driven world its important more than ever to prepare students for the future through hands-on Robotics activities and STEM education which helps them strengthen their problem solving skills and make them strive for more STEM-related innovations.

Ethio-Robo Robotics Education and Competition Centre is an official partner of different educational Robotics companies abroad. The programs arranged in collaboration with different educational robotics organizations will provide the platform for students to design, build and program a Robot to solve an engineering challenge by exploring the application of Science, Technology, Engineering and Math.

The goal of the project is to establish a Robotics Lab in all Ethiopian schools to promote STEM-Based robotics education which equip students with coding and STEM skills.

We are calling all schools to incorporating robotics into their school's curriculum for improved academic performance.

Ethio-robo Robotics is now working hard to establish Robotics Lab inside different school compounds. Students will be grouped in to different level-based teams and there will be an adult mentor for each team to watch and mentor a group. Students will meet after school and start to design, build and code educational Robots to learn Designing, Engineering, Coding and make themselves ready for the final Robotics competitions, on weekends or at any convenient time.

Ethio-Robo Robotics will provide all necessary educational robot kits for your school lab. It also gives all required training for adult mentors or any delegated school staff on how to organize your robotics lab and mentor students on the design, build, and programming processes.

Students in the Robotics lab will be arranged in to three levels and work together exploring STEM researches. These levels are:

1, ELEMENTARY AND MIDDLE SCHOOL
2, HIGH SCHOOL
3, COLLEGE AND UNIVERSITY

Ethio-Robo Robotics would like to invite you to establish your own Robotics lab under your school, and we are willing to provide you any guidance and support on how to organize your own Robotics lab. For more details and price please contact Ethio-Robo Robotics.

Thank you in advance.

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Ethio-Robo Robotics Education and Competition Centre

ABOUT US

Ethio–Robo Robotics Education and Competition Centre was founded in 2011. It used to be known as Iken Ethiopia. The institution is a unique platform that aims at promoting and strengthening the development of analytical thinking and problem solving skills in the field of Science, Technology, Engineering and Math through hands-on robotics education.

Our Vision

To provide students with the practical application of STEM which will help students to participate in science, Technology, Engineering and Math by providing educational Robot kits to practice what they are taught in their theoretical classes through continuous practice and competitions.

Our Philosophy

We are committed to create a new wave in the domain of learning concerning Science, Technology, Engineering and Math by providing solutions for methodology & practical education through Robotics. These learning tools facilitate collaborative learning and self-analysis as students, not just learn their lessons but begin to analyze why and how things work practically. It doesn't only make one learn practically but also makes a student think about what is being learnt.

General Objectives

- We provide students educational robot kits which help them to innovate different projects.
- Opening workshops & labs that will help students design, program & build a robot.
- To stimulate young minds.
- Getting students to explore.
- Exposing students to observation and experimenting.
- Letting students have their own peace of mind.
- Making students to understand the power of innovation.
- Inculcating the means of practicing and asking questions.
- Emphasizing on the fact that one problem may have multiple solutions.
- To master the scientific way of doing things.
- Having workshops, Robotics labs, forming teams for Robotics competitions that follow practical topics such as Robotics education & STEM-related innovation.

OUR MISSION

- To provide students the practical means of learning that help them to understand and enjoy their lessons.
- To help education in Science, Technology, Engineering and Math become fun-filled, innovative and student friendly.
- To unify education and entertainment.
- To help promote Ethiopian educational policy by delivering the highest quality of practical education in the fields of Science, Technology, Engineering and Mathematics.
- To create the best centre which focuses on robotics education and competition which helps students work more on STEM-related innovation based on the Ethiopian educational policies. This would help students to participate in hands-on science activities.

Reasons why Robotics should be taught in schools?

1 ENCOURAGING STUDENTS WITH STEM

Robotics is a fun way to bring STEM to life, and that's important because STEM is the key to a successful future for students with the interest and motivation to pursue a career in the field.
Principals, Teachers, Educators in all levels, know the value of learning Science, Technology, Engineering and Math (STEM) and focusing on STEM education, to prepare students for the future STEM Jobs.

Robotics takes STEM education to a new level, creating the next evolution in teaching. That's because introducing robotics to schools means making STEM skills and knowledge hands-on and fun.

Robotics requires the entire subject of STEM, so it's a well-rounded approach to educational technology learning. Clearly, there's a need to get students involved in STEM through hands on robotics and the earlier, the better.

what is STEM?

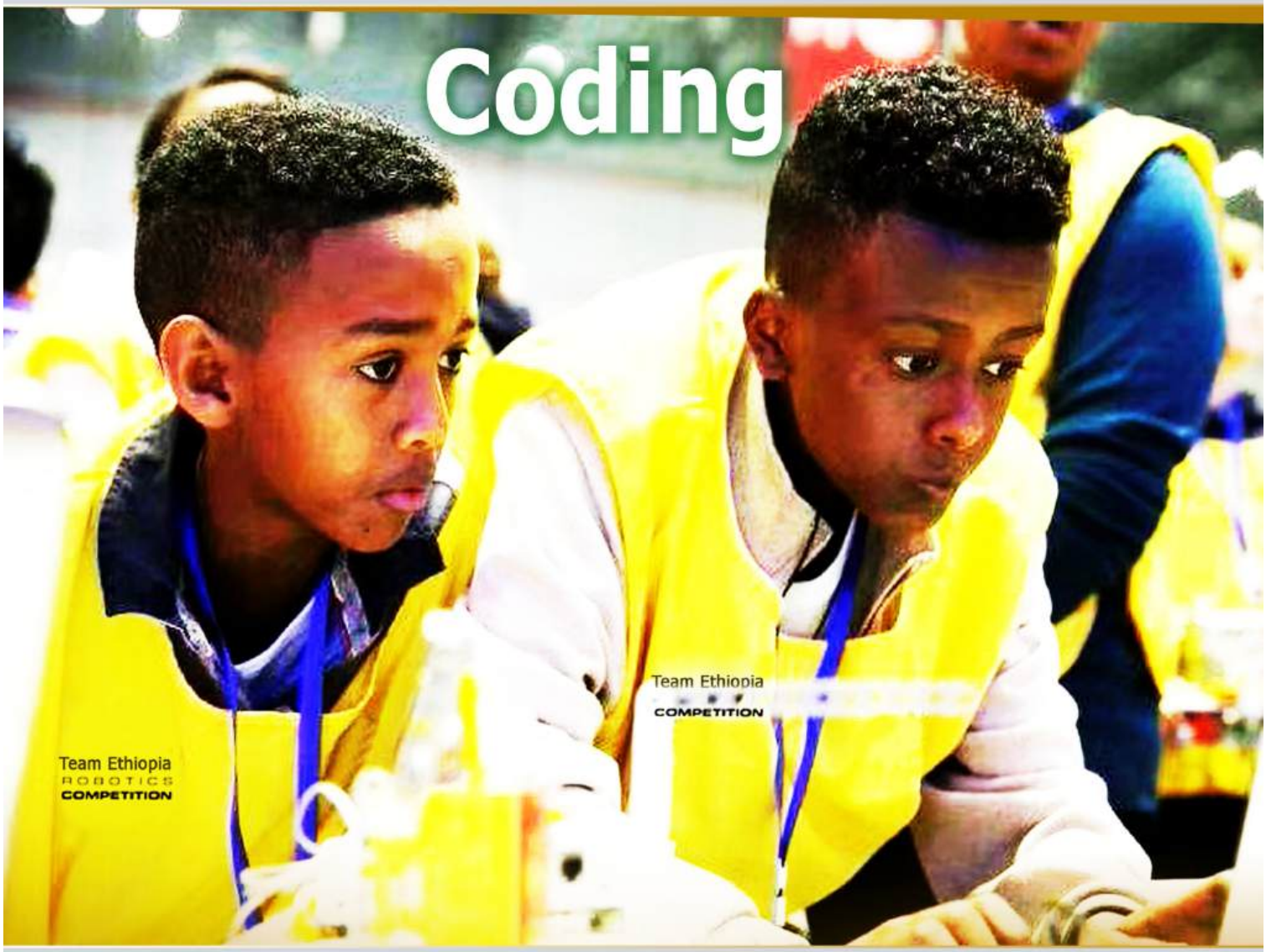
a) **S**cience
b) **T**echnology
c) **E**ngineering
d) **M**athematics
e) ~~All of the above~~ ROBOTICS

2

AN INTRODUCTION TO PROGRAMMING

Learning to program is an excellent skill to have to make students more likely to get a job in the future, and earn more money in their life time. Teaching young students the abstract subject of programing can be a challenge feat. Programming is often too complex for most to grasp. Robotics is simpler to understand and a more tangible introduction to programming, when students program physical educational robots.

It's easier for them to see what goes wrong as they learn what robots can and cannot do. They learn the programming skills needed to create specific and accurate instructions and have fun while learning valuable lessons. Teaching robotics in schools gives the opportunity to address the growing demand of teaching STEM subjects while learning how Science, Technology, Engineering and Math work together and interact.



3 INCREASE CREATIVITY

Robotics is a project–based learning module and concepts instead of theoretical knowledge. Students have the opportunity to create something tangible and make it perform the actions that they program it to do. Not a lot of fields combine creativity with engineering and technology, robotics does. in fact students love to partake in activities in which they have full control, something that is possible with robotics, and when learners are able to do great stuff, they want to develop more features.

When students are given the opportunity to create something interactive that they think is fantastic, their engagement levels increase, and they retain more information. You might be surprised at the things kids can create and redesign when given the right information and tools.

Is your design the next?

- Stone wheels were the first wheels used in Mesopotamia and is believed to be over fifty five hundred years old.

- Since stone was very heavy, it was replaced by wooden disks with a hole for the axle.

- With the evolution of spokes, wheels become lighter. Spokes helped the wheel in retaining its shape.

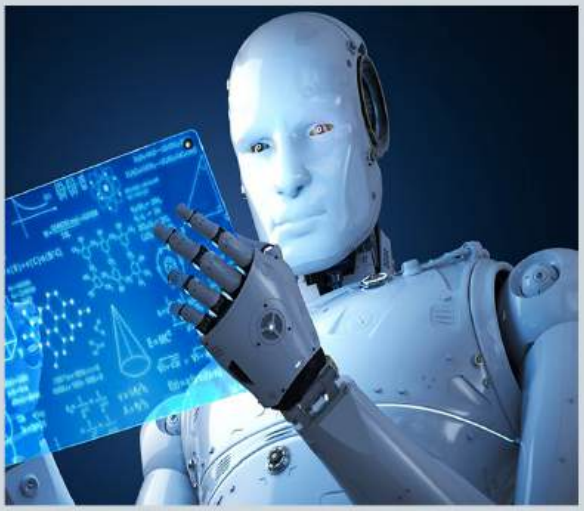
- With time humans realized that if an air-filled rubber tube was covered around the tire, the shocks due to bad roads were considerably reduced.

- With introduction of tubes also came the problem of having flat tires. Tubeless tire was introduced to overcome this problem.

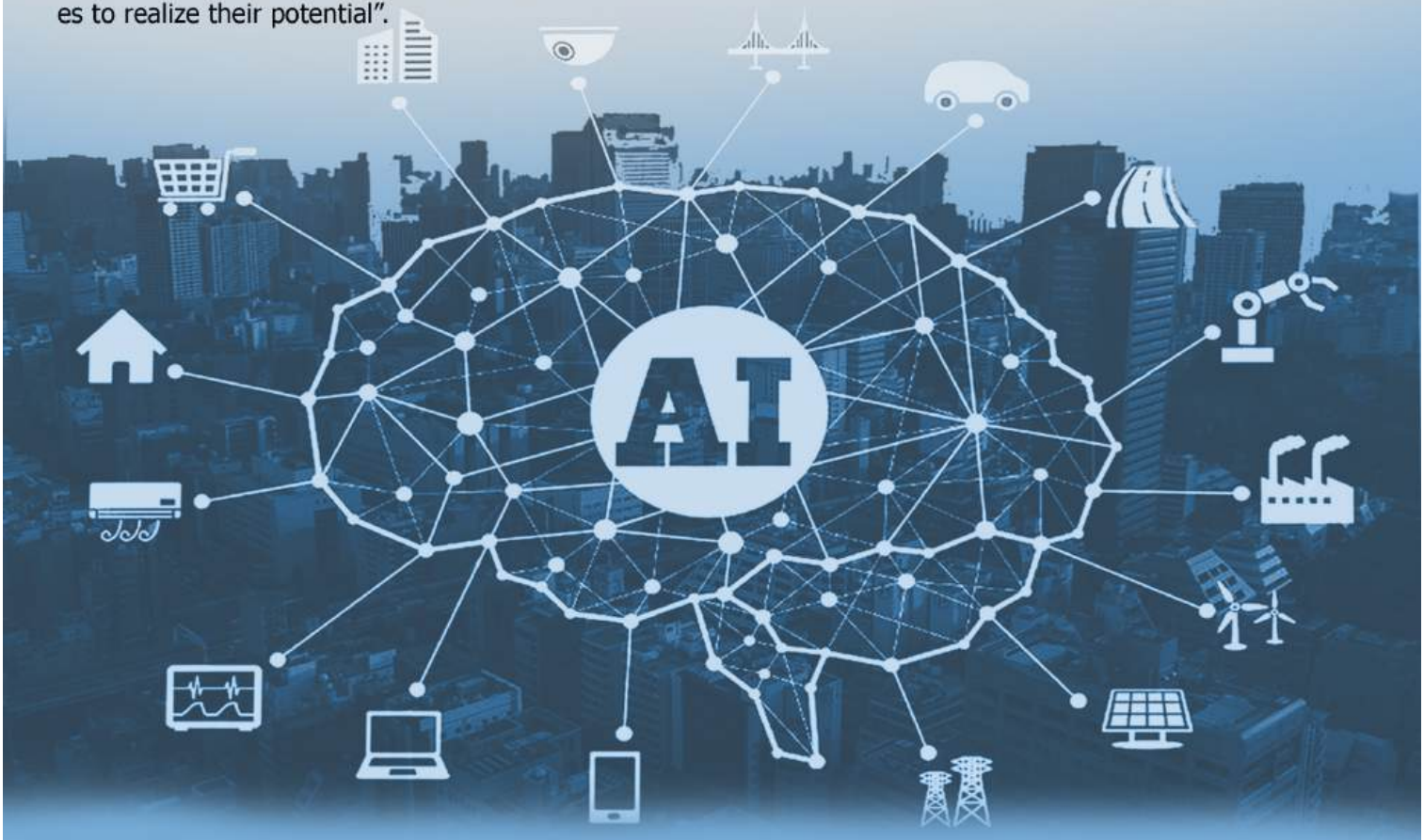
4 PREPARE THEM FOR THE FUTURE

It's no secret that jobs in the STEM field are the fastest growing careers, and are projected to grow super fast in the next decade. Smart Tech Industries such as Smart Phone, Smart Wearings, and computers have grown dramatically and rapidly in the last couple of years. Growing industries such as these are going to need people who can come up with new and innovative ideas, and be equipped with the knowledge to design and create the technology needed..

By the time all of our students graduate in a few years or so, most of the available jobs will be in the STEM field and the large amount of employeers will require employees to have some STEM knowledge, when students are introduced to robotics in their school years, they can discover any interest and talents that they may have in this job market. Without the knowledge access to robotics education, especially for students in Ethiopia & Africa there is no best way for students to build interest in these fields without robotics education in schools, "who knows how many potential creators and innovators there are who were never given the resources to realize their potential".



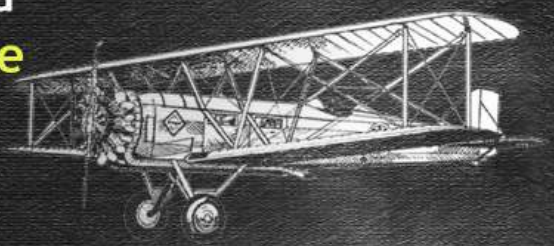
Fit in the **AI Future**



5 Engagement

Hands-on learning activities enhance concentration and attention levels, because the more students learn physical skills, the more they want to continue being in the lesson. Interactive Robotics Engineering provide students with hands-on access to the Science,Technology, Engineering and Mathematics subjects they learn in school to help build crucial problem-solving Technology, when classroom instructions include project-based learning, all students can see themselves as successful part for the solution.

If Wright Brothers had not questioned why humans cannot fly, the aeroplane would not have been invented.



6 ENHANCE PROBLEM SOLVING SKILLS

Learning how to build and program a robot can be a complex and difficult process. Many students will struggle with the concepts at first and often get frustrated. Robotics in schools can help these students turn their frustration into creativity and innovation. This is a valuable life lesson that teaches our students perseverance and determination when faced with challenges. Students learning robotics are able to channel their frustration in to trying harder and aiming higher. All their hard work makes looking at that finished product even sweeter at the end. Not only does teaching students Robotics teach them how to persist and solve problems, but it also helps them to increase their maturity levels and prepare them for real world situation.

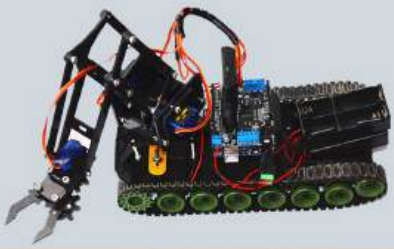
7 EMPOWERING GIRLS

Robotics is also a field that has the ability to empower girls in the classroom. STEM-focused fields are traditionally male dominated, leaving young girls to question their ability to program or build a computer. Because the Tech-world is not one that focuses on boys only it is created for girls too, by engaging them with robotics and technology in the classroom we can begin to empower more girls on tech-world. When girls relize their ability to build robots and program, they are empowered to have a successful future and create innovative technology.

Educators must embrace the latest skills and Robotics knowledge for effective girl empowerment through Practice-based learning, that's why they should embrace Robotics, which is breaking new ground in learning methodology around the world.

8 TEAM WORK SKILLS

Robotics incorporates a range of skills, and thus promotes a learning environment for people with different talents. If properly harnessed, it also promotes a culture of teamwork. It can even be used to help students who might struggle to learn in traditional class room settings for example :- there are many types of robots developed to help autistic students, and its main goal is to bring everyone on board through modern educational-technology approaches in academia. Project-based learning is the essence of Robotics engineering. As groups of students work together to answer questions like, "how large should we make the robot to accomplish the assignment? Or, "what material should we use to build an ideal model?" they collaborate, think critically and creatively, and communicate with one another. Classroom engineering activities often require students to work in teams where they must collaborate and communicate effectively. Research also shows that when Robotics engineering is part of elementary instruction, students become more aware of the diverse opportunities for engineering, science, technical careers and they are more likely to see these careers as options they could choose in the future.



9 FUN

Not many fields of knowledge incorporate creativity and fun simultaneously. Robotics achieves both; Learning about robotics is fun. Robots have always been a captivating piece of technology, programmable to move, make noise, light up, and follow instructions as directed.

There is nothing quite as fun and educational as building one's own robot and setting it through the paces of a race, an activity or a challenge. In the school setting Robotics encourages problem-solving creative thinking and a healthy sense of a competition that drives innovation from students, that's why schools must embrace robotics in a school setting.

10 ENGINEERING

Introducing children to interactive Robotics engineering in elementary school brings a host of benefits. If you have watched children at play you know they are fascinated with building things and with taking things apart to see how they work. In other words, they are natural-born engineers. When children engineer in a school setting research suggests that children will get several positive results.

Robotics engineering calls for children to apply what they know about Science and Math and their learning is enhanced as a result.

Building a Robot helps students improve their Engineering Science and Math Skills. At the same time, because engineering activities are based on real-world technologies and problems, they help children see how disciplines like math and science are relevant to their lives.

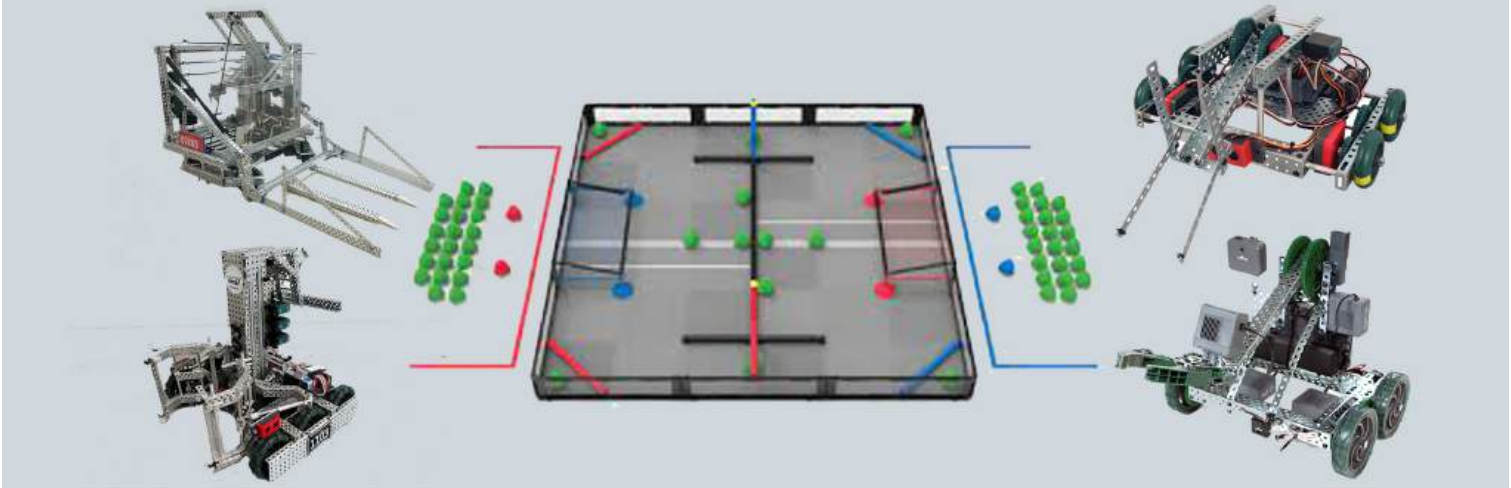
Children have a natural curiosity that inclines itself to science, technology and engineering.

We inspire children to build on their natural desire for answers by exploring engineering concepts in a fun and hands-on way. Ethio-robo robotics strongly believes that schools should offer Robotics classes designed to present kids with challenging yet accessible engineering activities from which they can learn and grow their engineering skills. Also Ethio- Robo Robotics believes that early introduction to engineering through Robotics can encourage many talented students in Ethiopia to consider engineering as a career and take necessary science and math courses in elementary & high school.

"Robotics Lab Establishment"

* Ethio-Robo Robotics' responsibility.

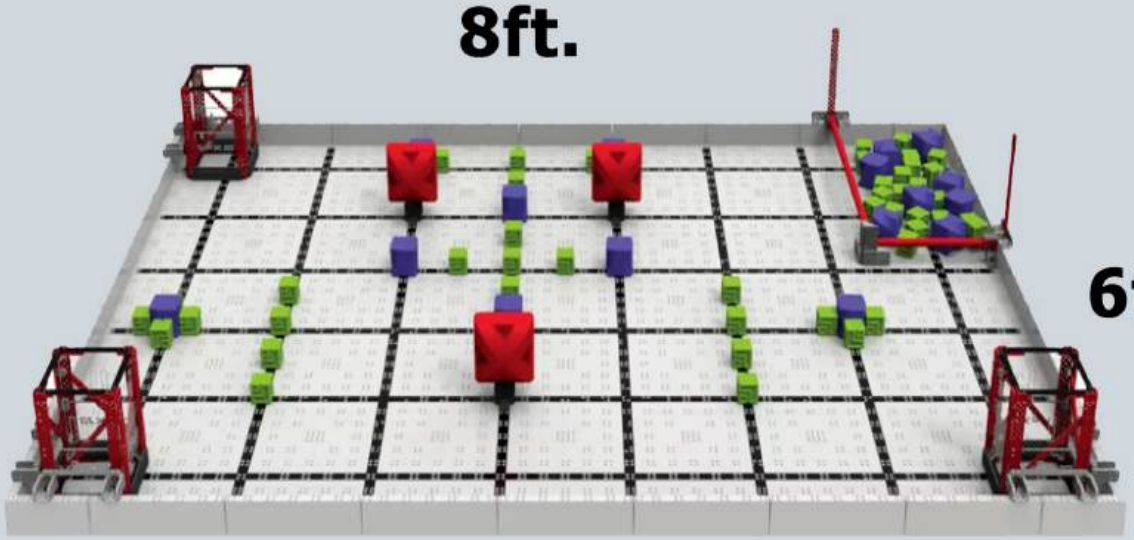
1. Sharing of Robotics lab proposal and quotation including all the specifications.
2. After confirmation team Ethio-Robo Robotics will conduct site survey.
3. Ethio-Robo Robotics will help in creating the Lab design & summit for approval.
4. Execute the order within 30 days.
5 Training will be provided to the students as well as faculty
6. One-year technical support.
7. Sign Memorandum of Understanding (MOU) for a long-term association.



High school, collage & university students game field and Robot Kit

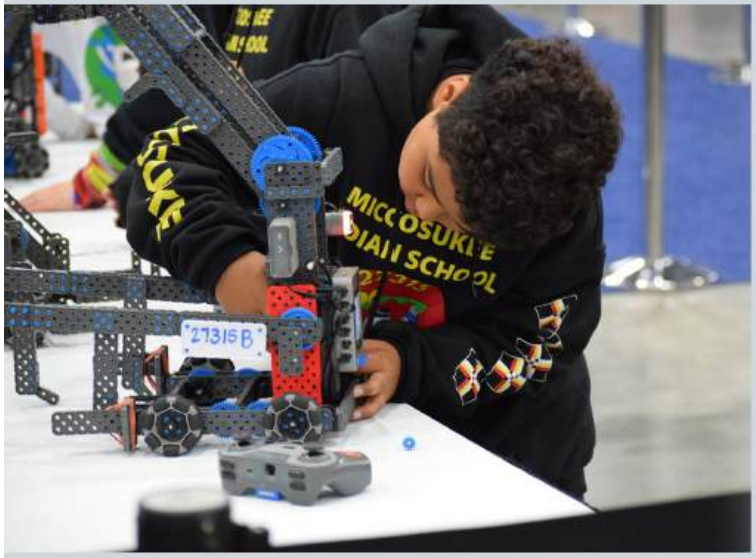
Ethio-Robo Robotics Education & Competition Centre will provide you all **Elementary, Middle, High school, Collage & University students** Game fields and Robot kits with affordable price.

Cell Ph: +251 911 675401 / +251 909 790386 ethiorobo@gmail.com
https:// www.ethioroborobotics.com Location: Bole TK BLDG. 1st Floor off.No 110



VEX IQ Competition 2023/24 Full Volume Game Field & Full Element Kit

VEX IQ Robots



Elementary & Middle school Students Game field and Robot Kit

In the middle of the 2022/23 African Robotics Championship in Addis Ababa, Ethiopia

Innovators of Tomorrow

Don't limit a child to your own learning, for he was born in another time

Rabindranath Tagore

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In collaboration with
Ministry of Innovation and Technology