

armath

"Algorithm of Future"

In Armath Engineering Laboratories children aged 10-18 are introduced to science, technology, engineering, and math (STEM) education through interactive after-school classes, exciting competitions, innovative camps and more.



Project implementation & development of the methodology is driven by the Union of Advanced Technology Enterprises (UATE).



UNION OF
ADVANCED
TECHNOLOGY
ENTERPRISES

UATE is a non-governmental, not-for-profit organization of IT and High-Tech companies operating in Armenia. UATE's mission is to place Armenia on the world map of the international High-Tech market. It supports a favorable business environment, organizes events, and implements lobbying and development projects.



Armath Mission

Empower the younger generation with skills and a mindset for the economy of the future by encouraging and unlocking engineering and creativity talent.



Program Concept

- Engineering laboratories as after-school classes
- Accessible for anyone aged 10 to 18



Program Objectives

- Support technology sector growth
- Advertise the IT profession
- Deliver equal educational opportunities
- Improve the technological education curriculum
- Regional development throughout the country
- Promote the entrepreneurial culture, innovative and engineering mindset
- Creation & strengthening of the bond between the school system, labor market, and universities



Achievements



WCIT 2016 WITSA
Sustainable
Growth Award



2020 Most Promising
EdTech 100 from
Russia & CIS region



2021 Most Promising
EdTech 100 from
Russia & CIS region



GITI-2016 Best
Provider of IT
Education Award

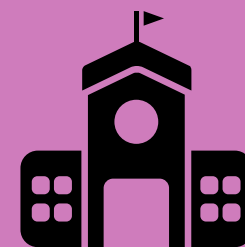


Best IT Project in
Armenia by Eurasian
Economic Union



Nokia Award at the
2018 Eurasian Week
International Forum

Armath Today



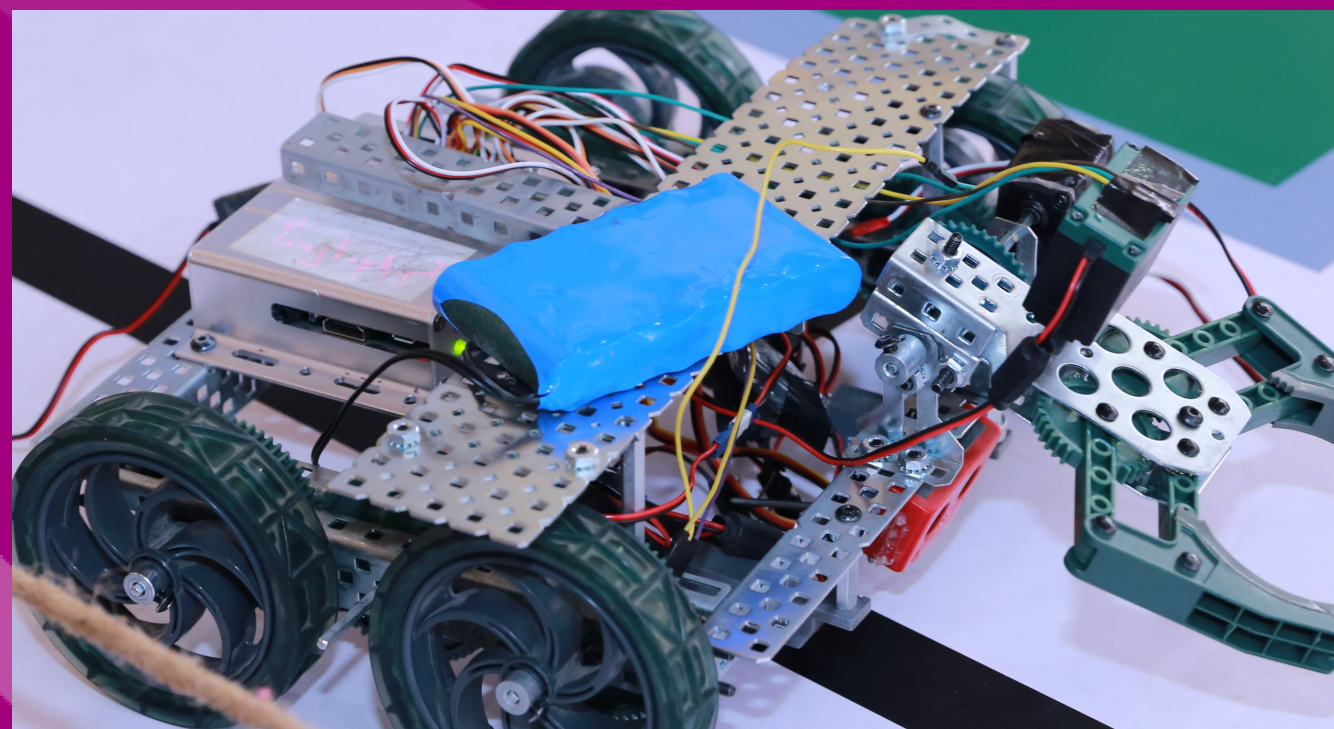
635 + Labs

Across Armenia, Georgia,
India, USA, Bangladesh,
France, Kuwait



17000+ Children

Benefiting from
the project



Educational Program

Basic Course

Scratch & Modified Version - Aghues:

- Creation of simple computer games
- Creation & use of animations
- Use the physics laws

Kria:

- Application of mathematical algorithms
- Arithmetic calculations
- Visualization of algorithmic tasks using mathematical formulas

Basic Robotics:

- Collection of simple robot constructor
- Programming of Line Following robot
- Using K-turtle & Kria programs for robots programming

Advanced Course

- Assembling of SERob robots

- Connection to Robots via PC, Laptop, tablets or smartphone

- Creation basic programs for robots, using Aghues and Kria that skills already obtained from 1st stage

- Making and programming robots which will have a function to line tracking, find and sort objects, and avoid obstacles, escaping, attacking

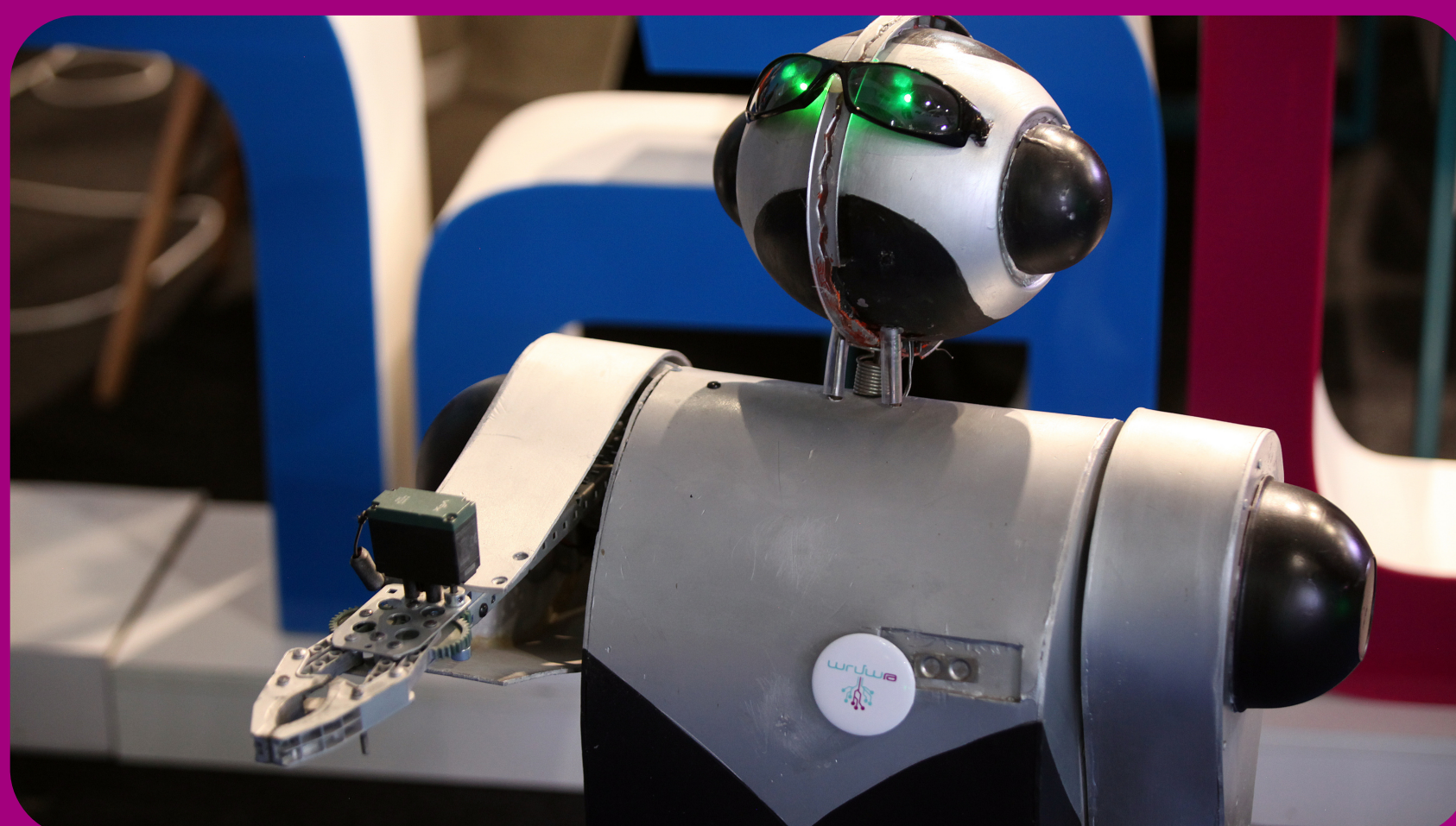
Expert Course

3D Modeling & Printing by 3D Printer

- Learning and discovering the technical structure of 3D printer
- Printing of modeled detail
- Discovering the printing stages
- Creation of stl and gcode files for 3D printer
- Learning FreeCad modeling program, OpenScad

CNC Laser and Drilling Machine

- Learning of Inscap modeling program
- Learning of HeeksCad and HeeksCNC programs
- Learning of bCNC program, which is for controlling of CNC machine
- Creation details by drilling or laser cutting



Curriculum Components

1

Basic
Programming
& Animation

2

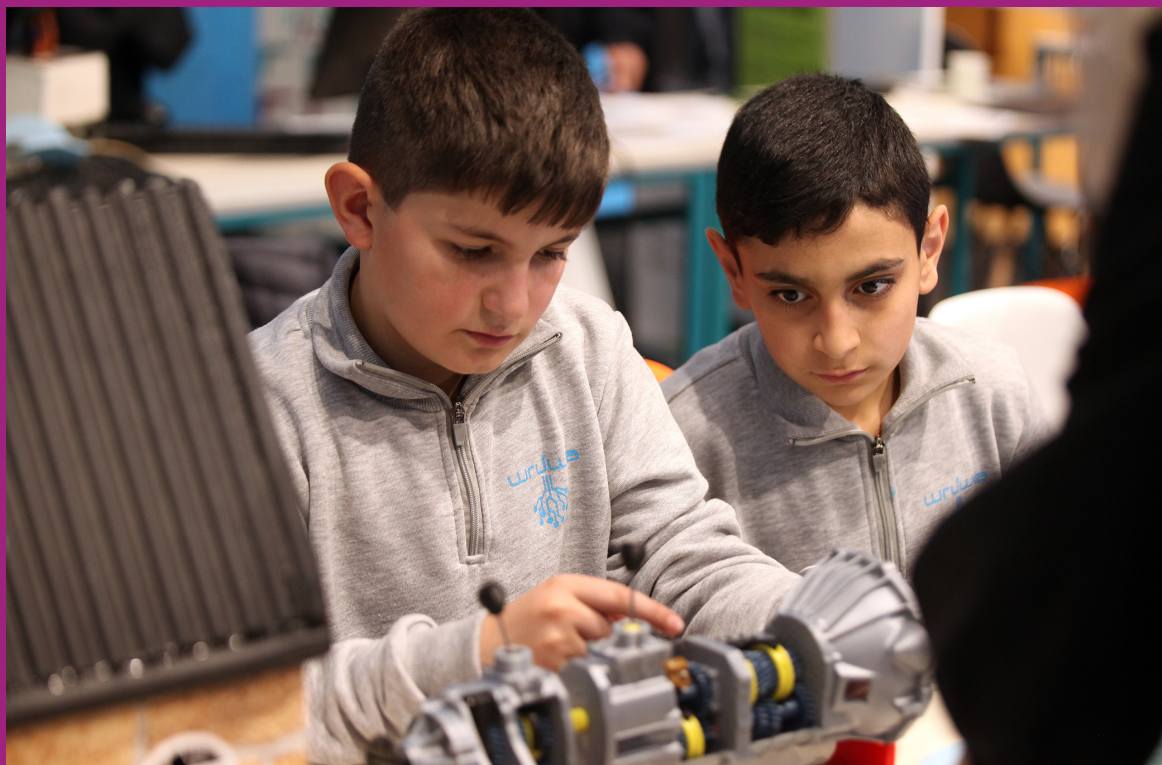
Microcontroller
Programming &
Robotics

3

3D
Modeling

4

UAV & Control
Systems



Why Armath?

To create
thoughtful,
innovative &
active
members of
society

To understand
influence &
role in their
community

Learning to
create a
company: from
product, to
design, to
fundraising &
marketing

To learn facing
challenges &
finding
solutions

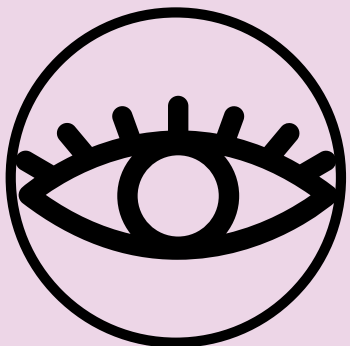
To understand
how robots
work

To help
students
becoming
creative
problem
solvers

Soft Skills



Self-Confidence



Critical Eye



Creativity



Initiative



Team Work



Adaptability



Entrepreneurship

Implementation Plan

Stage I

Selection of the venue & the coach

Stage II

Training of coaches

Stage III

Armath Lab installation

Stage IV

Monitoring & Consulting

Stage V

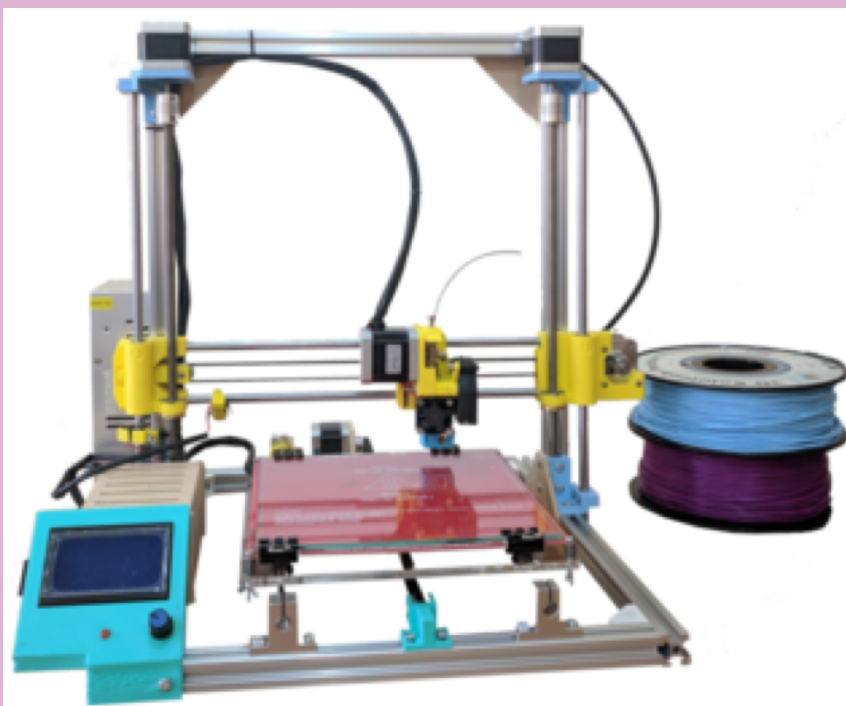
Participation in contests, expos, & camps



Equipment & Software

The education programs of Armath Engineering Laboratories are based on advanced learning methodologies and tools, a leading research and education institution in the fields of physical sciences and engineering. These programs start with basic programming and take pupils from robotics to production in an environment of exploration and creativity.

3D Printer



Digital modeling allows you to create three-dimensional models of any objects and details. Students can print objects and parts that they have modeled using a 3D printer, allowing them to create and assemble new 3D printers, print cases for mini computers, as well as other devices and items.

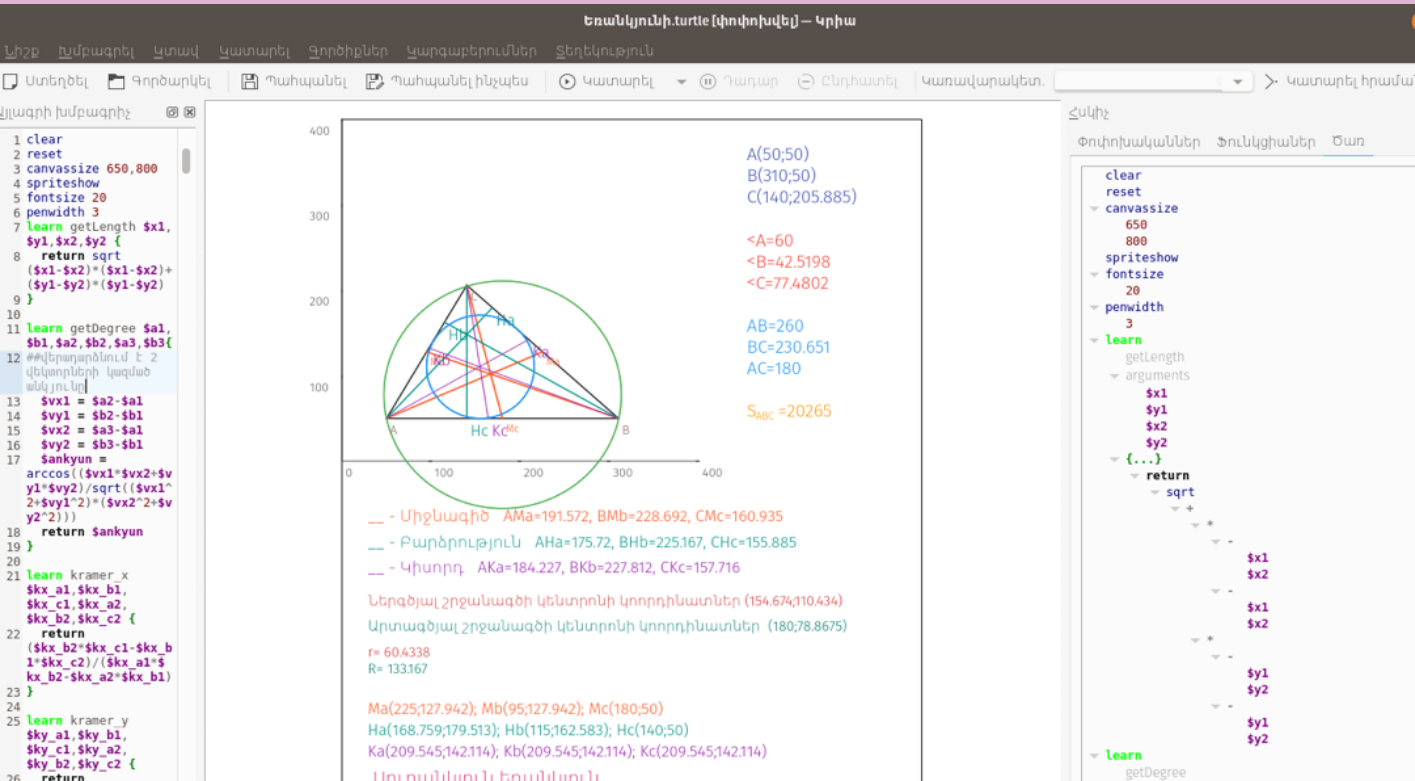
Computer Controlled CNC Devices

It carves on wood, lanterns, ABS, and other materials based on pre-modeled text, object, detail, etc. This machine allows students to have experience in engineering and modeling, and to be able to create items and details, which are used in the manufacturing process.

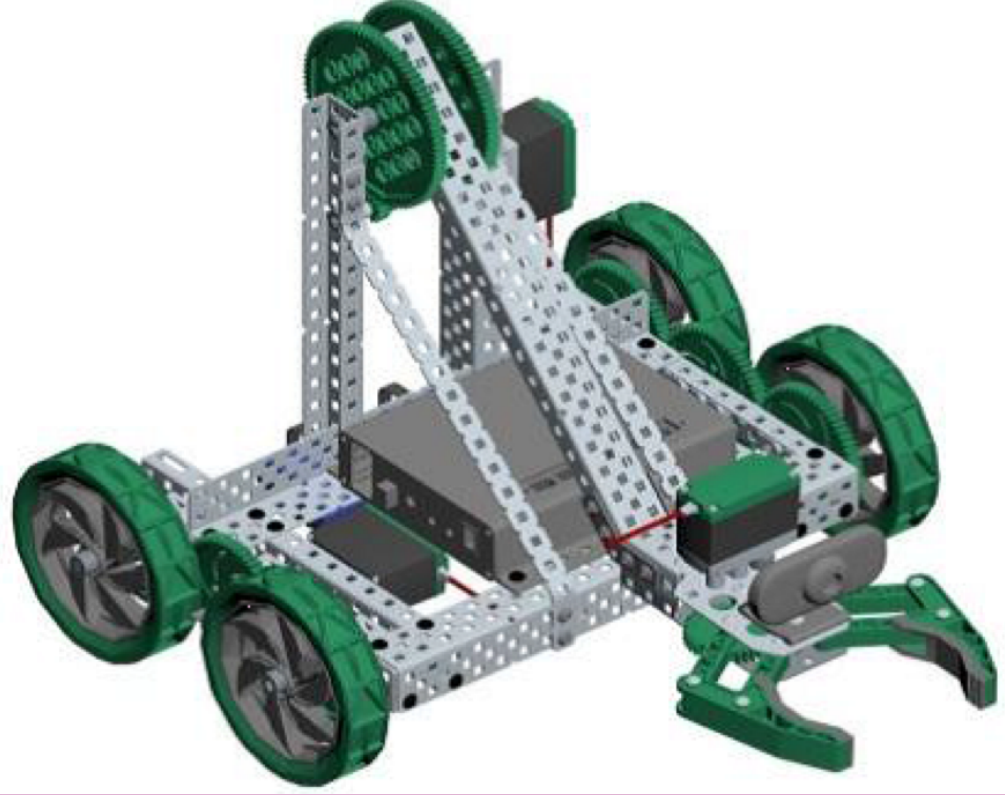


Kria

Kria is an adaptation of MIT's Kturtle, an educational programming environment Kria is suitable for teaching kids the basics of maths, geometry and programming. One of the main features of Kria is the ability to translate commands into the standard markup language (HTML), but the result can be saved as a vector or transparency image (SVG, PNG)



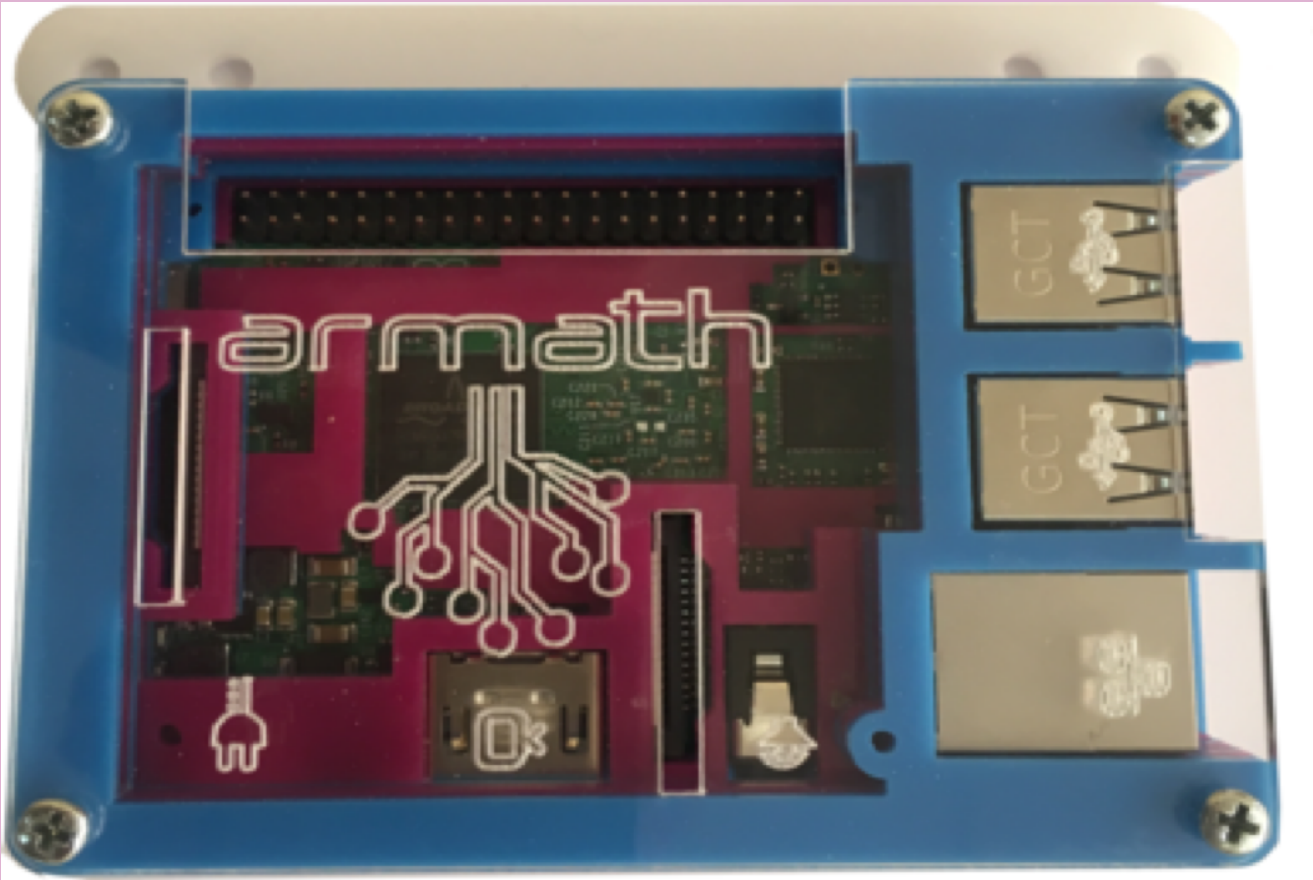
SERob Robot Kit



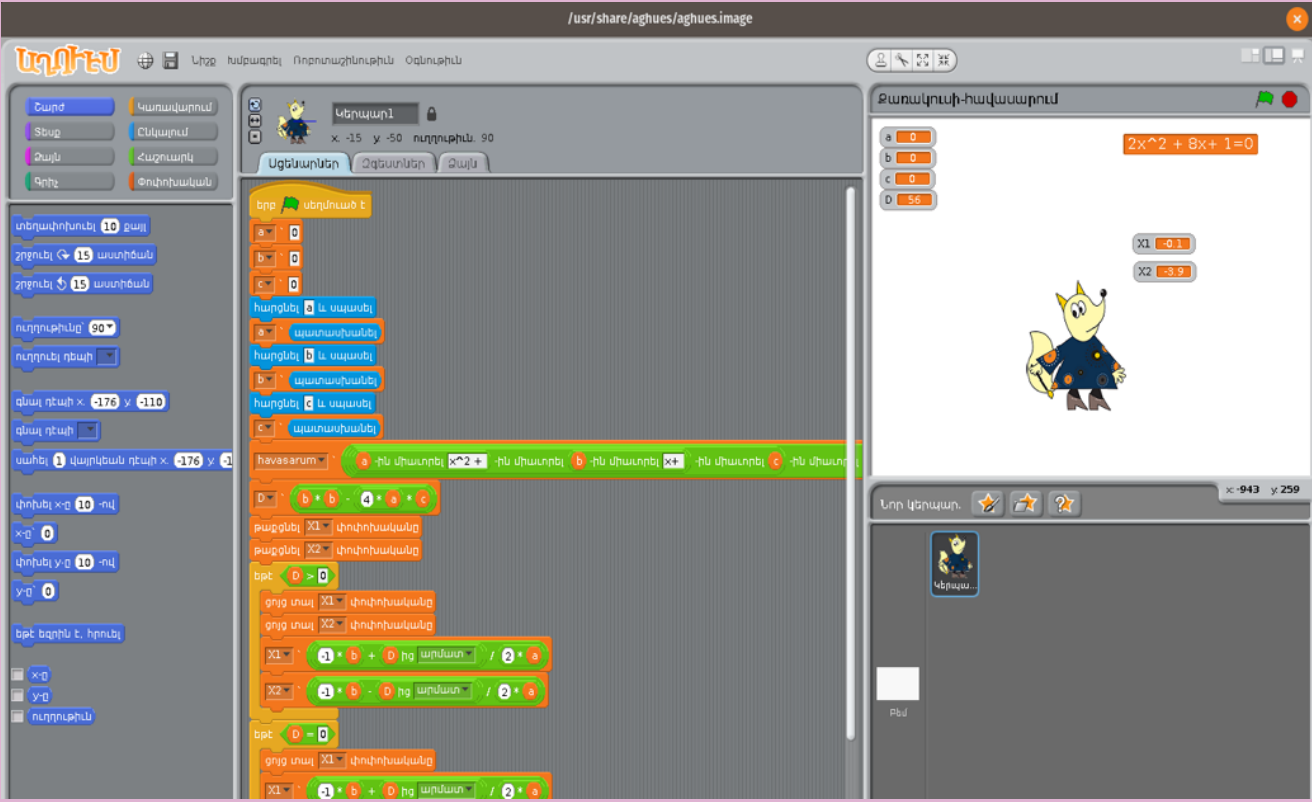
- This Robotics kit allows:
- to learn and teach the basic principles of robotics
 - to make automatization of processes
 - to plan and solve various engineering problems
 - to organize national and international competitions, as well as to participate in international robotics events

Mini-Computers Aygestan

The computers that are packaged in Armenia are compact, lightweight and universal, can be connected to the Internet (LAN, Wi-Fi). They are used for learning Aghues/Scratch, K-turtle/Kriay and other computer programming languages. After programming the mini computers can also be used as controllers of robots.

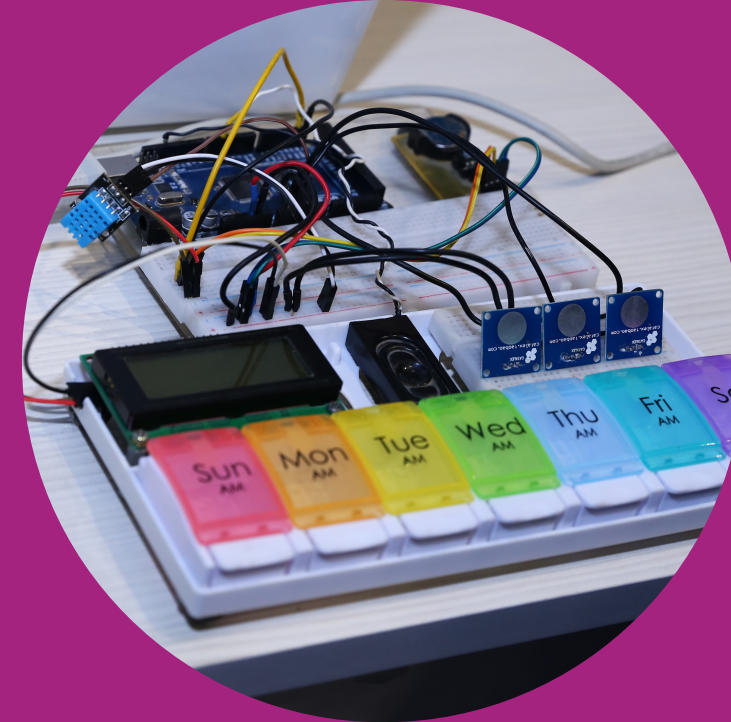


Aghues



Aghues is a visual programming environment and a toolkit, that lets kids make games, animated stories, interactive art, as well as share their creations with others on the Net. It is enhanced with modules that support sensors, motors, and robots board. The underlying program is an adaptation of the Scratch environment, developed by MIT.

Implementation Plan



Action	Responsibility	Comment
Prepare Contract	UATE	
Signing of Contract	UATE,School	
Prepare the room according to the requirements	School	1.Space: 40-50 sq. m area room 2. Computer table (120x60x70 height cm): 12 pcs 3. Computer chairs: 20 pcs 4. Whiteboard: 1 pc 5. Power sockets with 2 plugs (wall outlet), 220-230V (~3 Kw): 3 pcs 6. Internet (6-port router and Wi-Fi) 7. At least 8 computers for group of 16 students 8. Armath logo and wall painted with the colors of Armath
Find potential teacher-coach	UATE,School	
Provide interviews, testing and selection of the teacher-coach	UATE	
Organization of the training for the teacher in Armenia, 1st stage /programming/ training	UATE	Professional trainer by all components of the lab will train potential teacher in Armenia.Duration of the full training will be about 1 month scheduled. After the training the coach will become a certified Armath Coach. Practice is included during the training
Delivery of the equipment to the school	UATE,School	UATE will get equipment from suppliers and send to the country of destination. The final delivery from custom office to the school will do school
Installation of lab equipment in school	UATE	Training is including also the course of programs and equipment installation
Open the access for lab and kids to the global network of Armath	UATE	
Monitoring of activities in the lab, ongoing consulting and support	UATE	

Success Stories

Protolab

**Technological engineering
lab focused on 3D Printing
& Robotics**

Workshop on innovative 3D printing and robotics :

- 3D design and modeling
- 3D printing
- Digital architecture
- Robotech
- Software programming

There are four 16-year-olds directing the startup. Although they are young, they already have 2-3 years of experience in the fields of engineering, 3D modeling, and 3D printing.

Within the framework of its activity for several months, the company has managed to cooperate with different companies and receive over \$10,000 in crowdfunding.



"We are convinced that workshops like Protolab can revolutionize Armenia's 3D printing industry, help economic development, and show young people in the regions by their example that you do not have to live in the capital to succeed and create an effective business model," said one of the founders of the organization, Argam Amiraghyan.

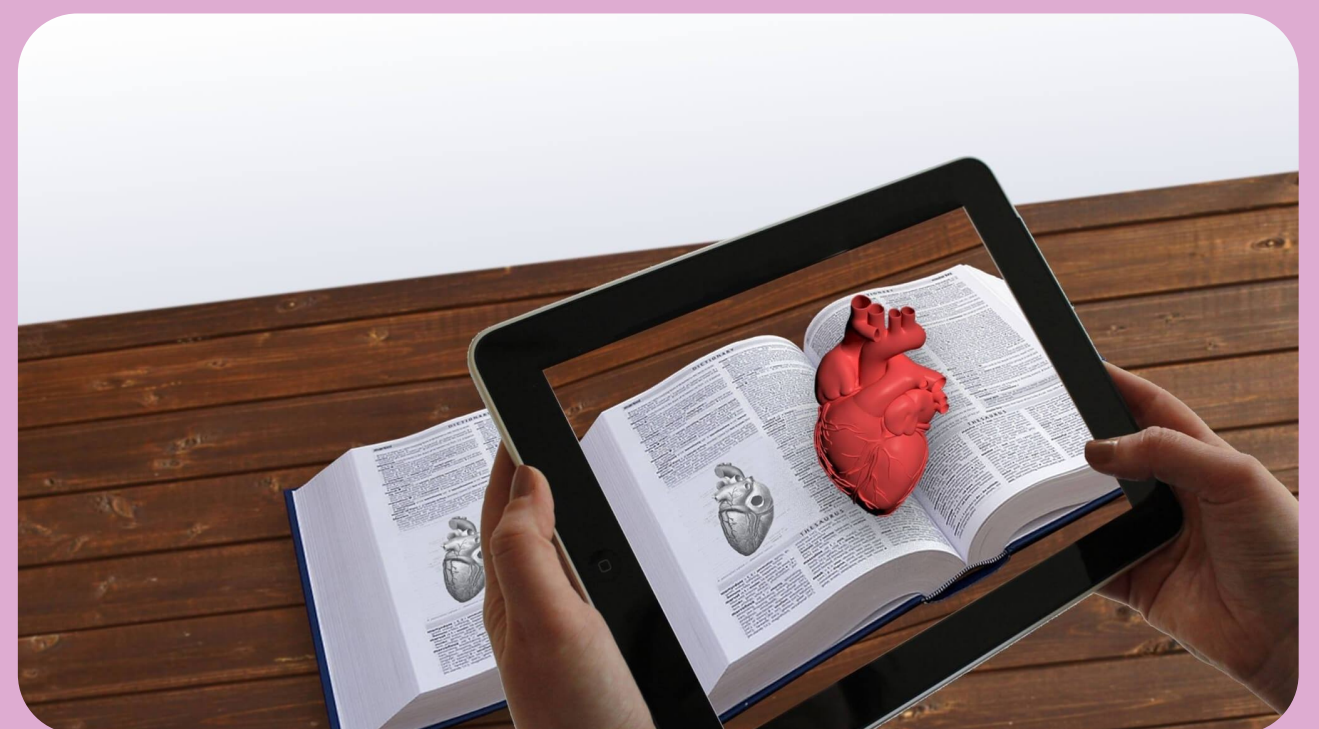
TakeAR

**Augmented Reality
Technology**

TakeAR manufactures mobile applications based on (AR) Augmented Reality technology.



AR technology allows us to recognize the components of our environment (pictures, objects) through the smartphone camera and to complement our environment with digital components (3D model, 2D animation, audio, video).



Contact Information



UATE
12A Nikol Duman street,
Yerevan, Armenia



(+374) 11 54 88 81



info@armath.am
info@uate.org



armath.org

franchisearmath.org



@ArmathEngineeringLaboratories



@Armath_Labs