

Leading the MAKERSPACE era...



Presented by:

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Project's coordinator

Founder & CEO

Project's Vision is...

To inspire the next generation of Inventors... today!

By designing a **holistic solution** of **age-appropriate** tools, that would enable children, even as young as **6+**, to effectively engage in **open-ended makerspace projects**, empowering them to **acquire** key **knowledge**, while developing their **21st century skills** of **engineering creativity**, problem **solving** and critical **thinking**.



Project: **INNOVATE/1221/0052**

Partners: **ENGINEO-NET LIMITED & UNIVERSITY OF CYPRUS**

Start Date: **3/10/2023**, Duration: **27 months**

Budget: **€ 2,112,000**

Funding: **€ 970,700**



ΙΔΡΥΜΑ
ΕΡΕΥΝΑΣ ΚΑΙ
ΚΑΙΝΟΤΟΜΙΑΣ



Με τη χρηματοδότηση
της Ευρωπαϊκής Ένωσης
NextGenerationEU



Business Support on Your Doorstep



Κυπριακή Δημοκρατία



Our History...

2004 – 2011: Developing & Launching



- 3 Year's of R&D
- Create the patented ENGINO classic building system
- Launch our first STEM Sets
- Create Mega Structures and solar sets



2012 – 2015: Scaling up production



- Bring Production from Asia to Europe
- Launch Robotics Program
- Develop kidCAD App & Keiro Software
- Create Educational content for Discovering STEM



2016 – 2019: Expanding product lines



- Establish new division with Classroom Solutions
- Develop further the Robotic lines
- Develop new Qboidz system for 3+
- Open US Subsidiary



2020 – 2025: Establish Edtech solutions



- Change Branding to enhance our STEM focus
- Develop Mechanics System for 9+
- Start Franchising ENGINO concept stores
- Launch the ENGINO LAB for schools



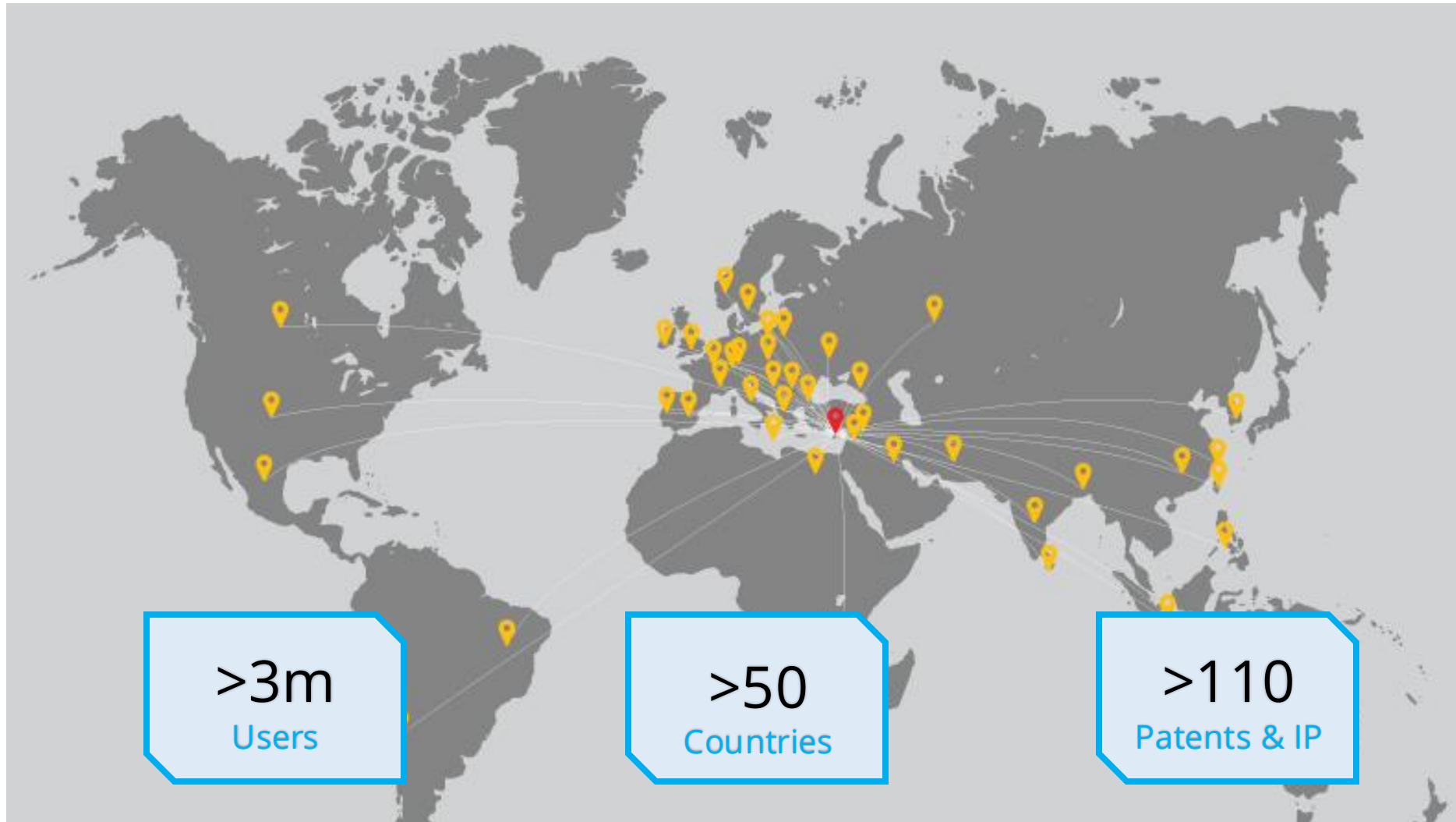


Multiple International Awards...





A Global Leader in STEM systems...





The current STEM trend...

Governmental Policy Drives the STEM Trend:

US (report by the President's Council of Advisors on Science and Technology)

"Need One More Million STEM Professionals Over the Next Decade".

EU (President Juncker's Political Guidelines)

"Need a Strong and High Performing Industry for the Future of Europe's Economy".

Market Maturity ("Global K-12 Robotic Toolkits Market 2017-2021"):



Engino has 3 main divisions

→ **Classroom Solutions**

→ **Educational Toys**

→ **Franchising Edutainment centres**



Why is STEM so important..?

1. In a technologically driven world, STEM professionals will be the backbone of the Future of Our Economy
2. STEM Teaches Critical Thinking and Innovation that helps in all aspects of life
3. STEM Classes Provide Unique Opportunities for Teamwork and Communication
4. STEM Curriculum Helps Students Develop Project Management Skills
5. Recent Events like COVID19 and remote learning, have only Made Technology Skills More Important
6. STEM projects help bridge the gender gap and racial inequality
7. Interdisciplinary, Real-World Problems, engage students and motivate them to learn better
9. During STEM challenges, the engineering design process of iterative optimization is learned
10. Through STEM projects children understand better hard-to-learn concepts



The ultimate STEM...

Teachers must provide to students:

“Educational experiences that include interdisciplinary approaches to solving grand challenges”

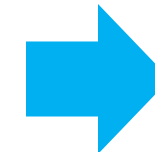
U.S. Department of Education

HOW?

Through **open projects** where children can apply the **Engineering Design Process** to develop an **idea from concept to prototype**

WHERE?

To be creative and **run repeated iterations** to optimize designs, **malleable materials** should be used. **New technologies** exist that allow this, such as **3D printing** and **Laser cutters**.



**Welcome to...
Makerspaces**

What is a Makerspace...

materials



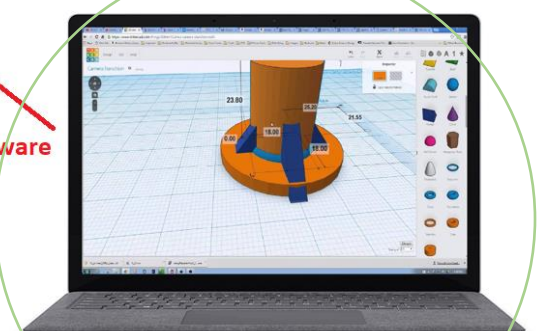
DIY electronics



laser cutter



design software



3D printer



hand tools



MAKERSPACE

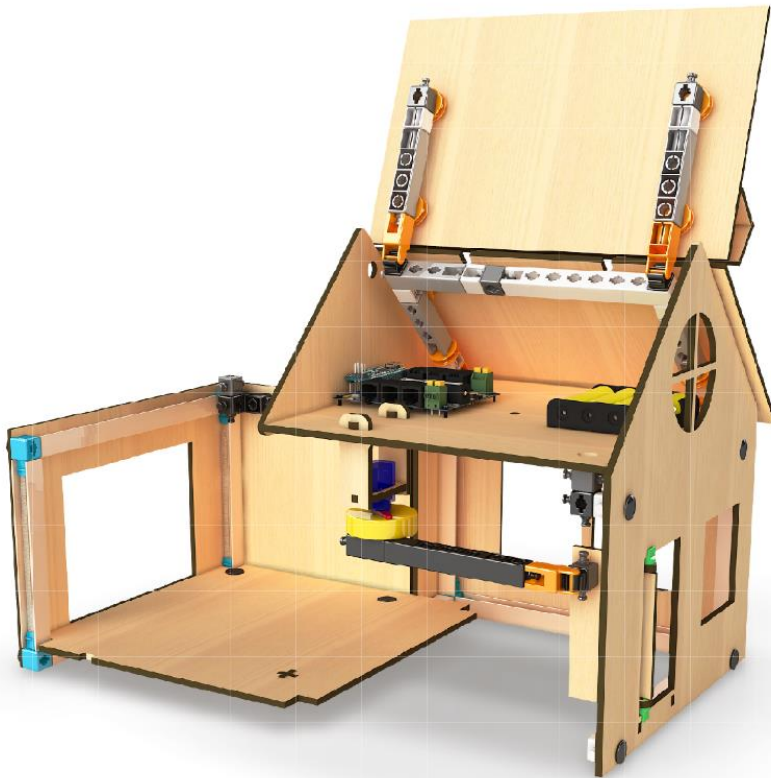


PROBLEMS..?

1. 3D printers and Laser Cutters require **extensive training and expertise** to use not available for most teachers
2. Open projects can easily **deviate from original scope** and not converge to a solution
3. Malleable materials require the **use of special tools** that require special skills
4. 3D printing can take **several hours** to days to finish hence does not provide results during a classroom session
5. 3D printed articles **do not have good precession** and lack mechanical properties for technical functions
6. The **software** to design 3D objects for printing are **not suitable** for younger kids as they focus to professionals
7. Teachers do not have access to structured **pedagogically developed recourses**
9. To set-up a Makerspace, **several equipment** from various manufacturers are needed, many times not compatible or complementary
10. A Makerspace installation can **be very expensive** and not viable yet for most schools

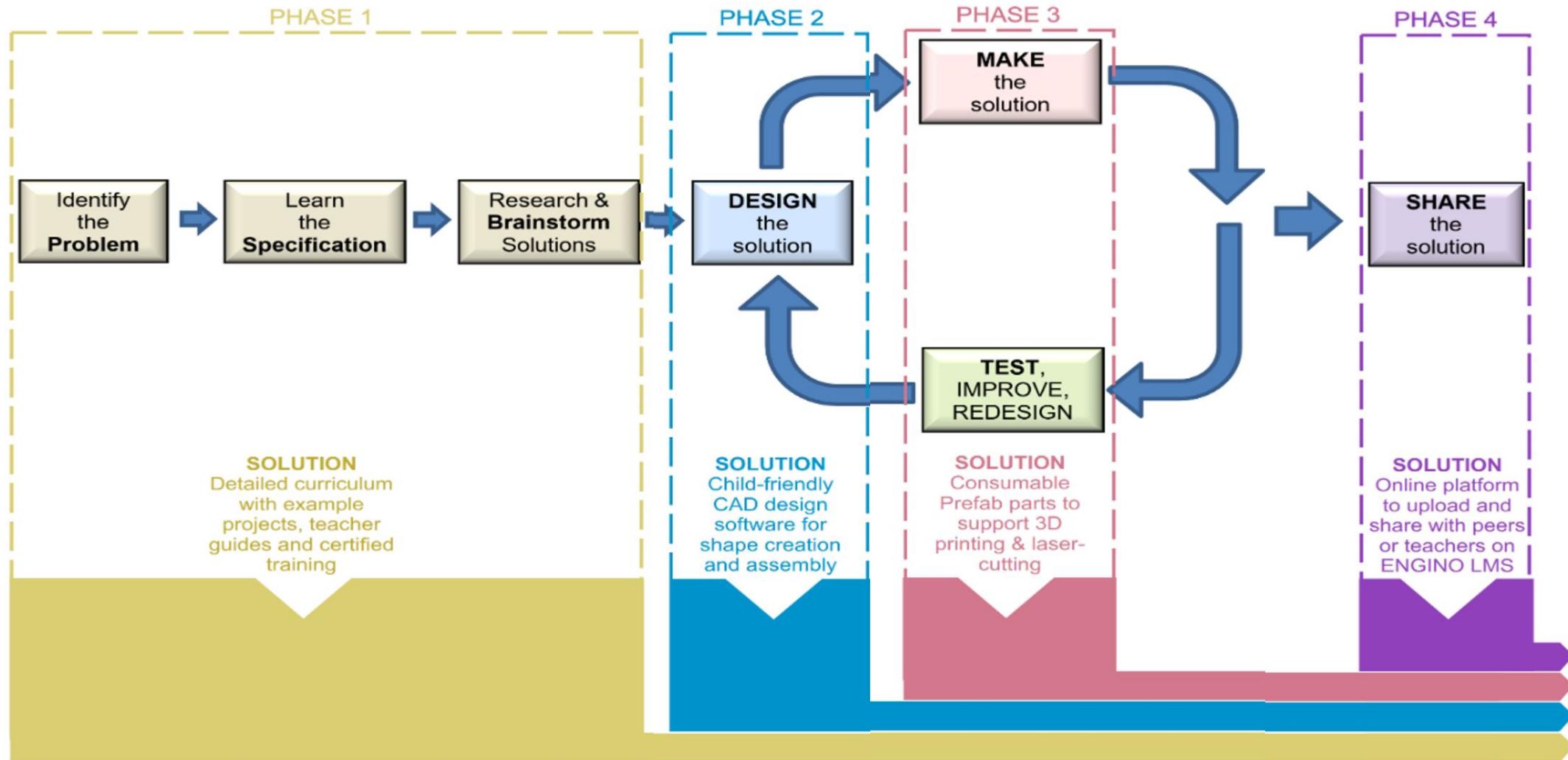
Where there are **problems...**

we see **solutions...**





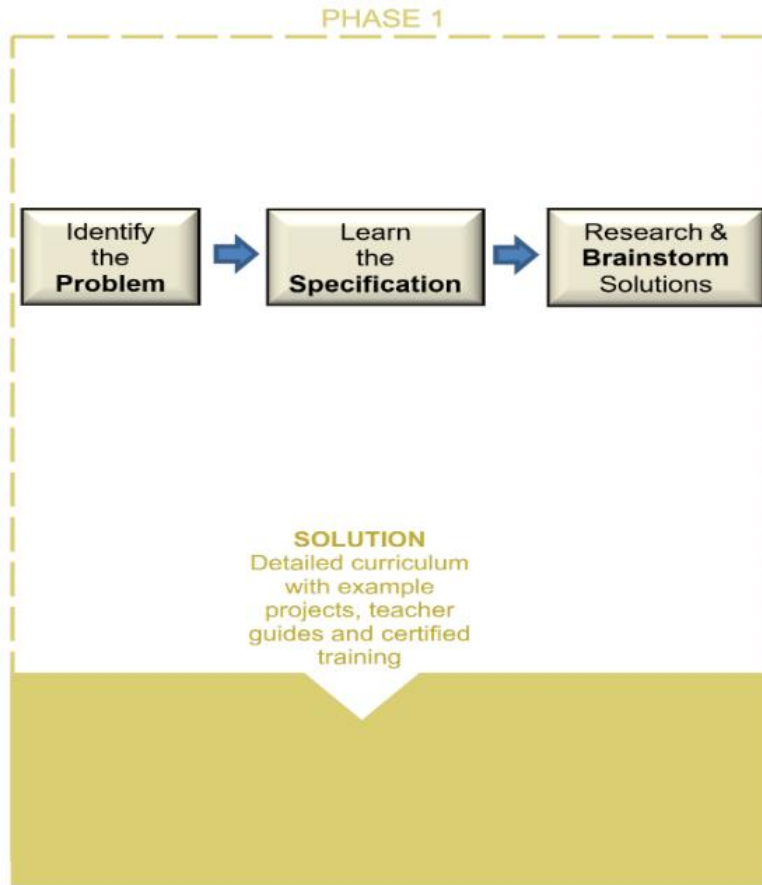
Our Solution? → Target the entire “chain” of *engineering design cycle*!



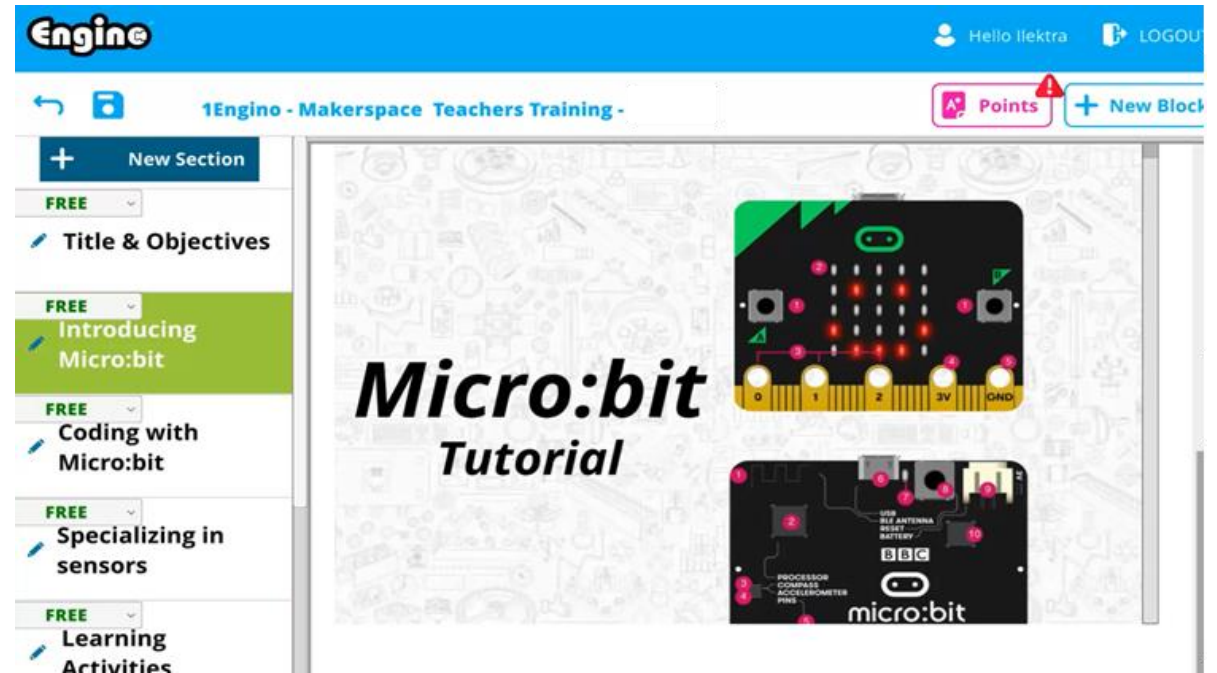


Solution...*phase 1 (PREPARE):*

Develop pedagogical challenges (=open Projects)



LMS platform

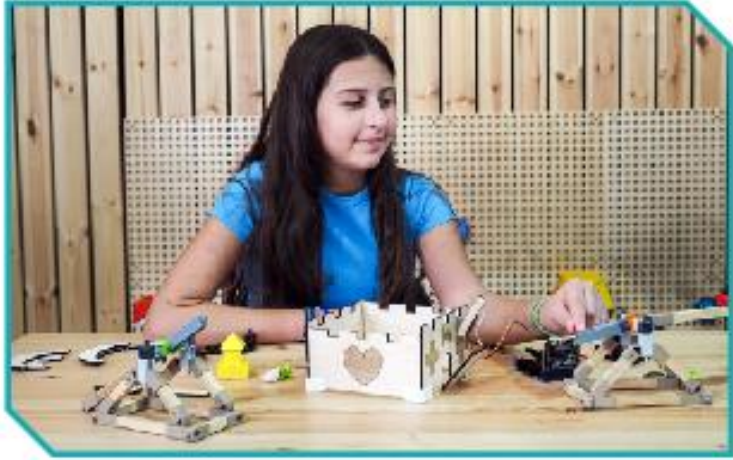


Printed books



Solution...phase 1: → Developed 8 projects

► Project 01: **Medieval Induction**



► Project 02: **Story Box**



► Project 03: **Community Building**



► Project 04: **Inclusive Swing**



*8 lessons
for each
project*

*90 min
per
lesson*

Solution...phase 1: ➡ Developed 8 projects

➤ Project 05: **Orrery**



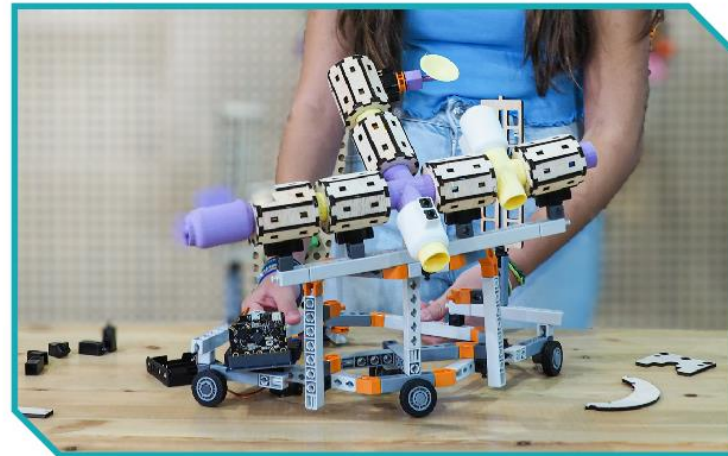
➤ Project 06: **Greenhouse**



➤ Project 07: **Innovative Bus**

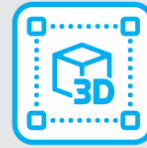
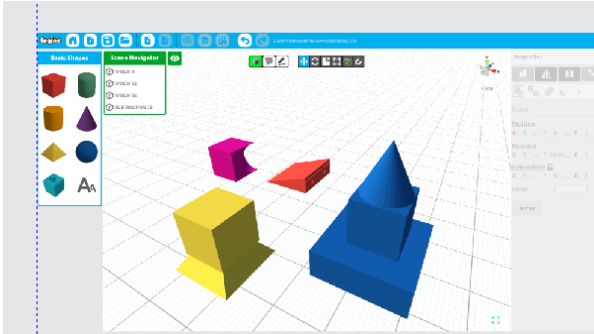


➤ Project 08: **International Space Station**

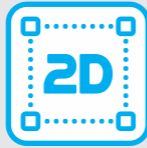
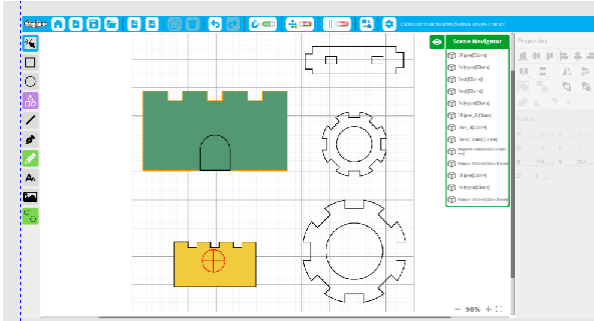
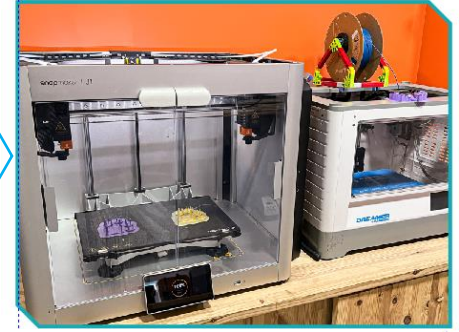


Solution...*phase 2 (DESIGN):*

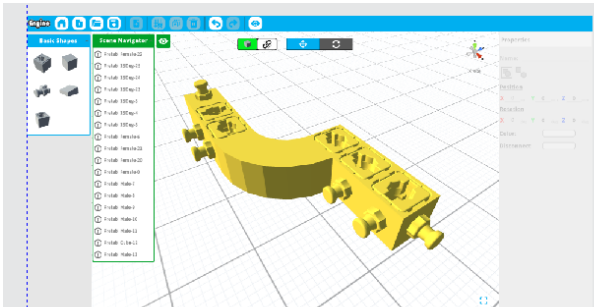
Develop **CAD design software**, suitable for kids



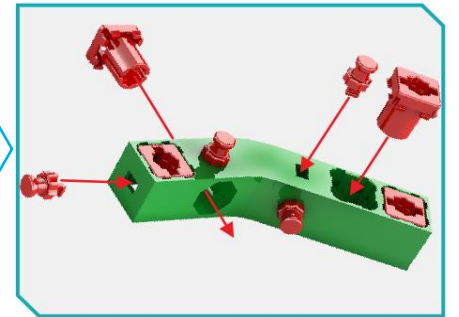
3D Designer: This mode allows users to construct complex models in a 3D space, with the option to export their designs for 3D printing, making it ideal for creating fully realized, multi-dimensional prototypes.



2D Designer: Geared towards simpler, flat designs, this mode lets users create layouts that can be easily exported for laser cutting, offering a streamlined way to produce detailed parts and patterns.



Piece Designer: In this mode, users create custom structures by designing a foundational framework onto which ENGINE's high-precision prefabricated parts can seamlessly snap, allowing for detailed customization and a professional-quality finish.



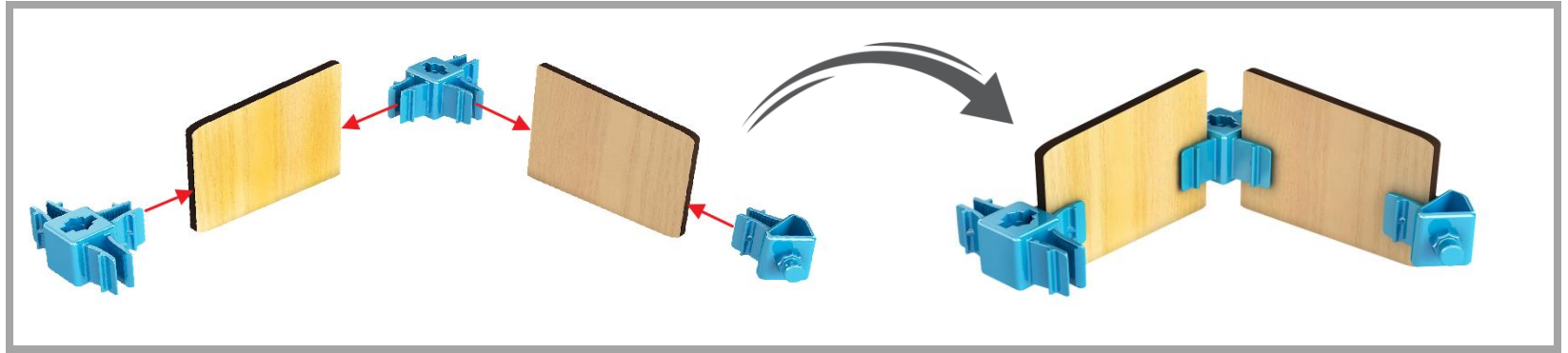
Solution...*phase 3 (MAKE & TEST):*

Develop consumable plastic pins for easy construction

PHASE 3

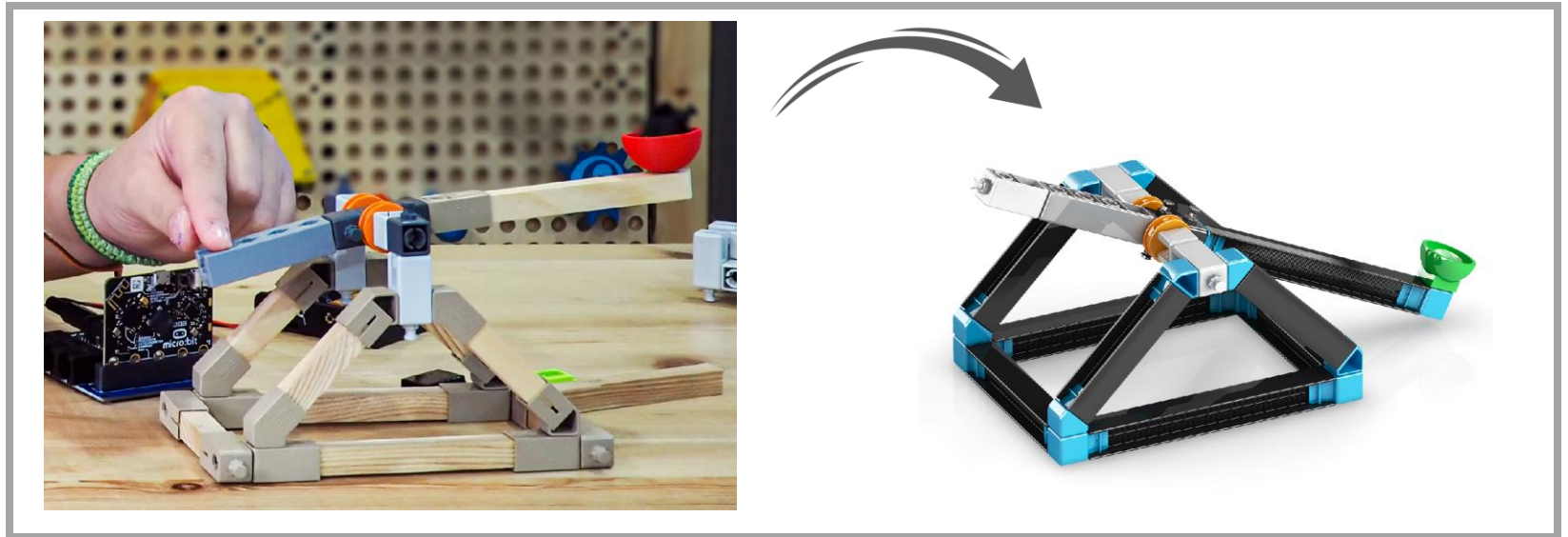
**MAKE
the
solution**

Connect
Wooden
plates



**TEST,
IMPROVE,
REDESIGN**

Replace
wooden
beams
with
recycled
Plastic



SOLUTION
Consumable
Prefab parts to
support 3D
printing & laser-
cutting

Solution...phase 3 (MAKE & TEST):

Develop **DIY electronics** with open architecture



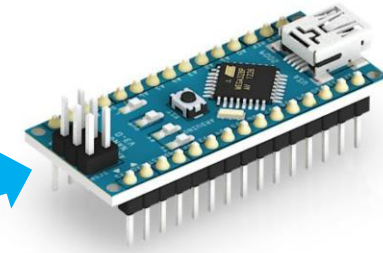
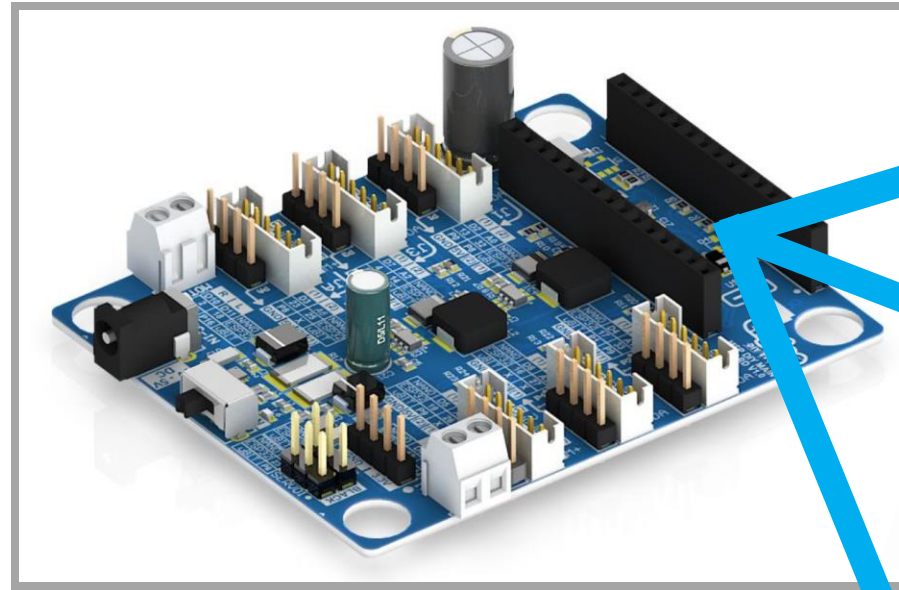
Main Expander PCB

Coding software

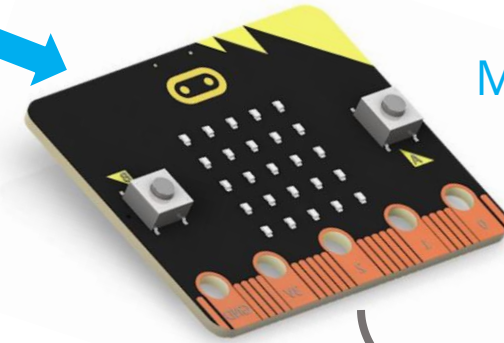
Microsoft MakeCode



AUTODESK
TINKERCAD



Arduino Nano

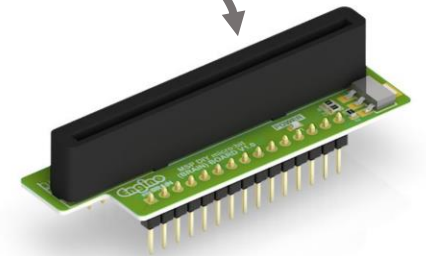


Micro:bit

Custom ESP32 processor PCB



Micro:bit Adaptor

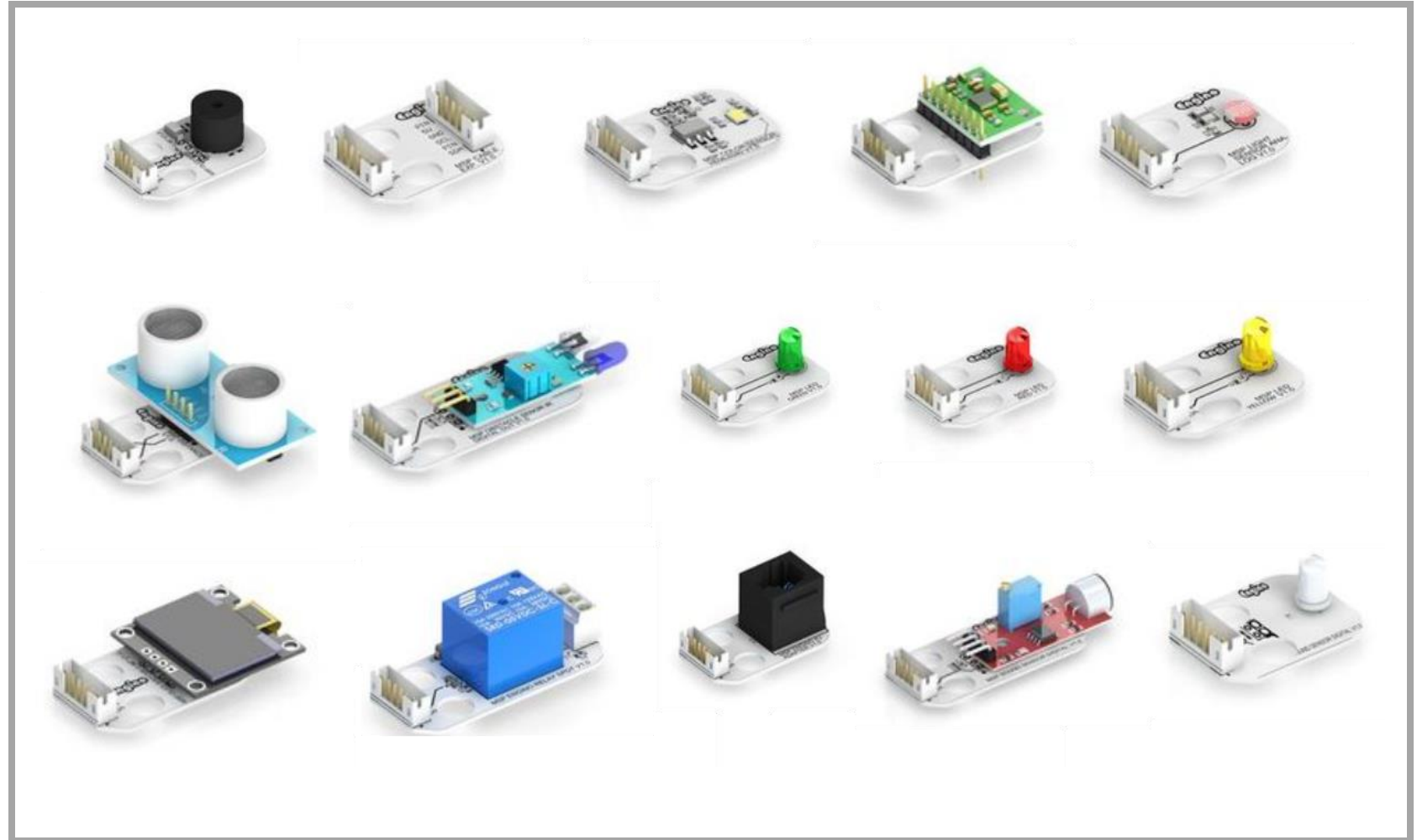


Solution...*phase 3 (MAKE & TEST):*

Develop **DIY electronics** with open architecture



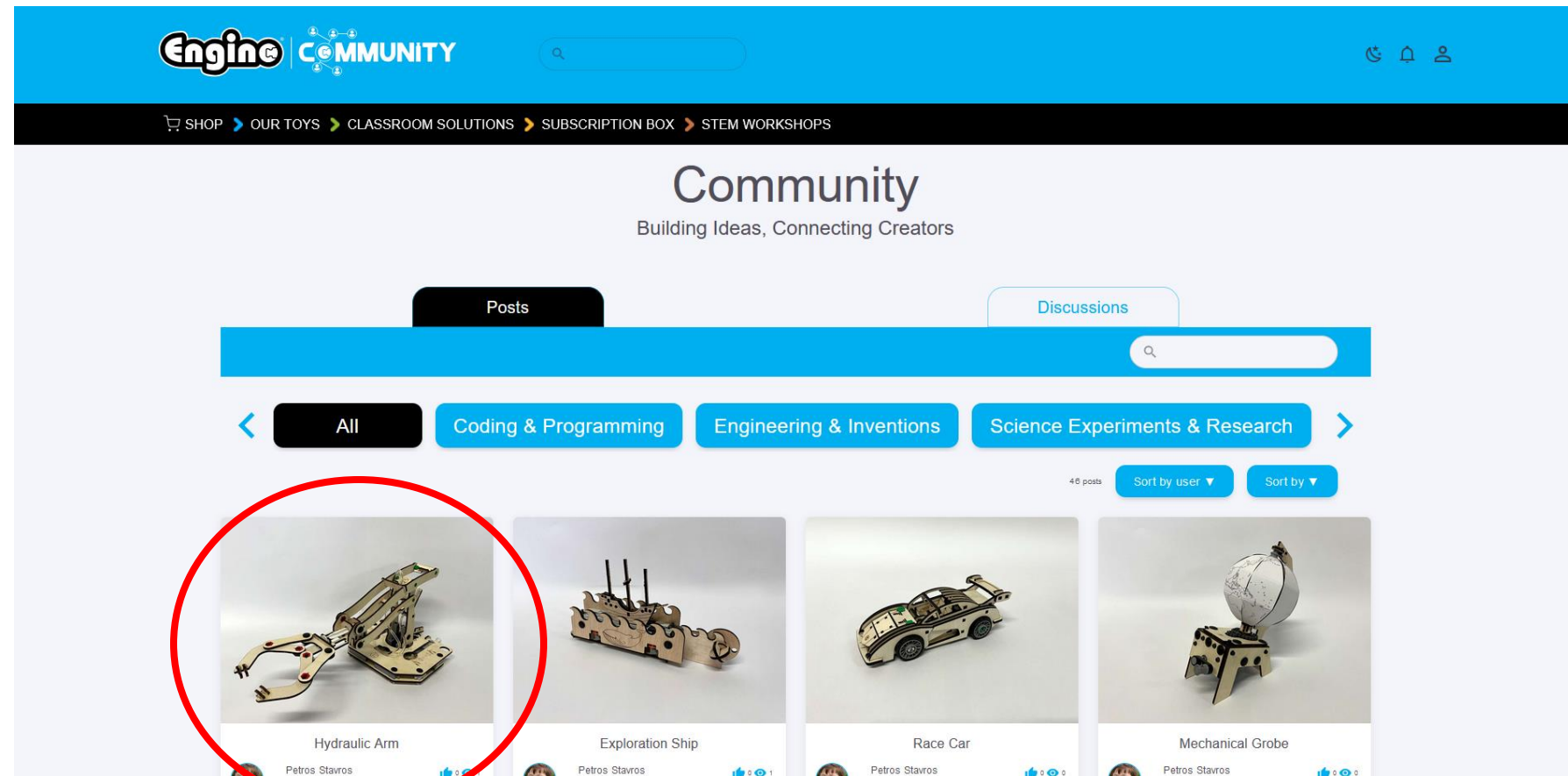
>15
Custom
Sensors
& actuators





Solution...*phase 4 (SHARE):*

Develop **community platform** for sharing projects and teacher's lesson plans





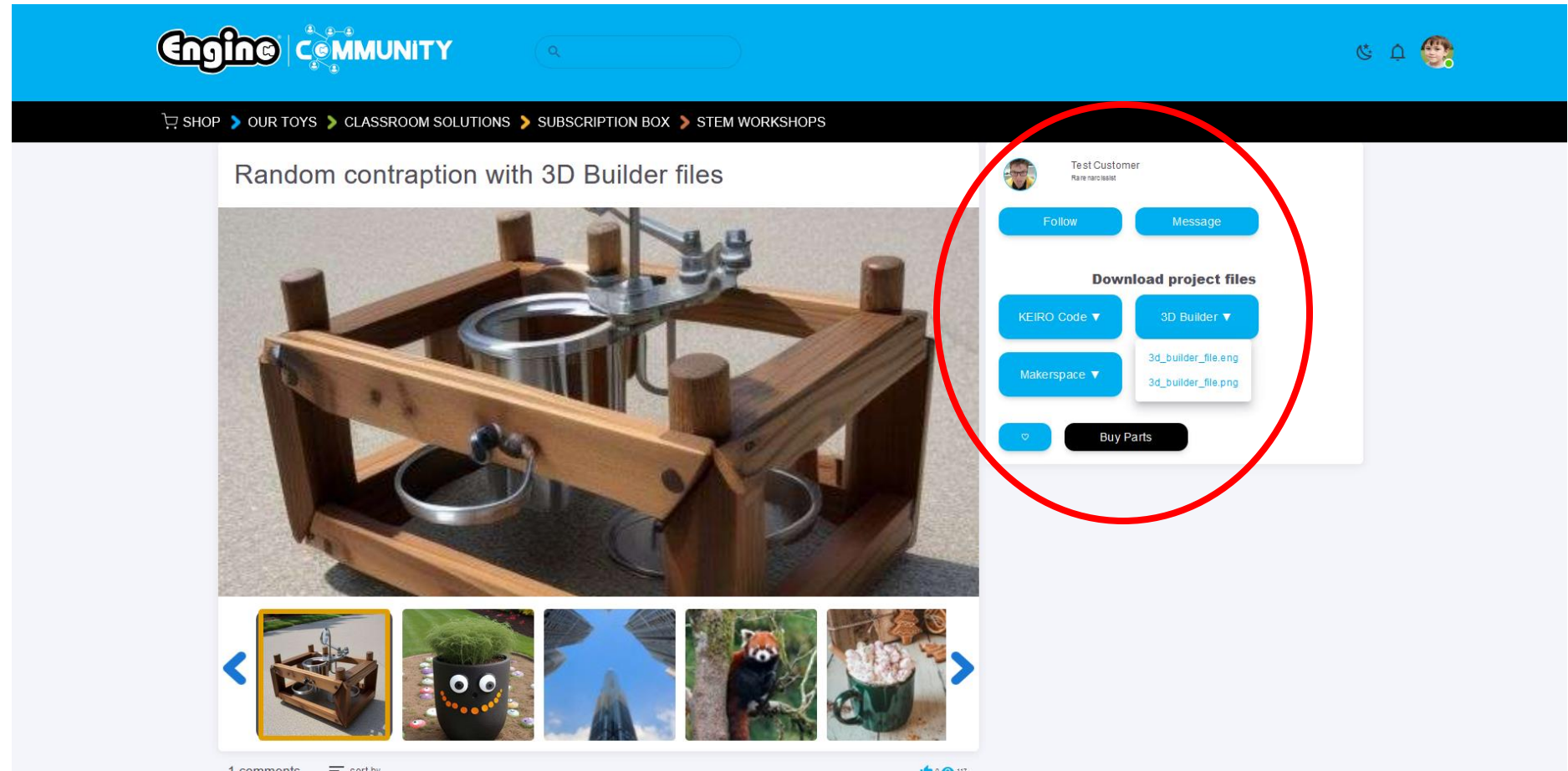
Solution...*phase 4 (SHARE):*

Develop **community platform** for sharing projects and teacher's lesson plans

PHASE 4

SHARE
the
solution

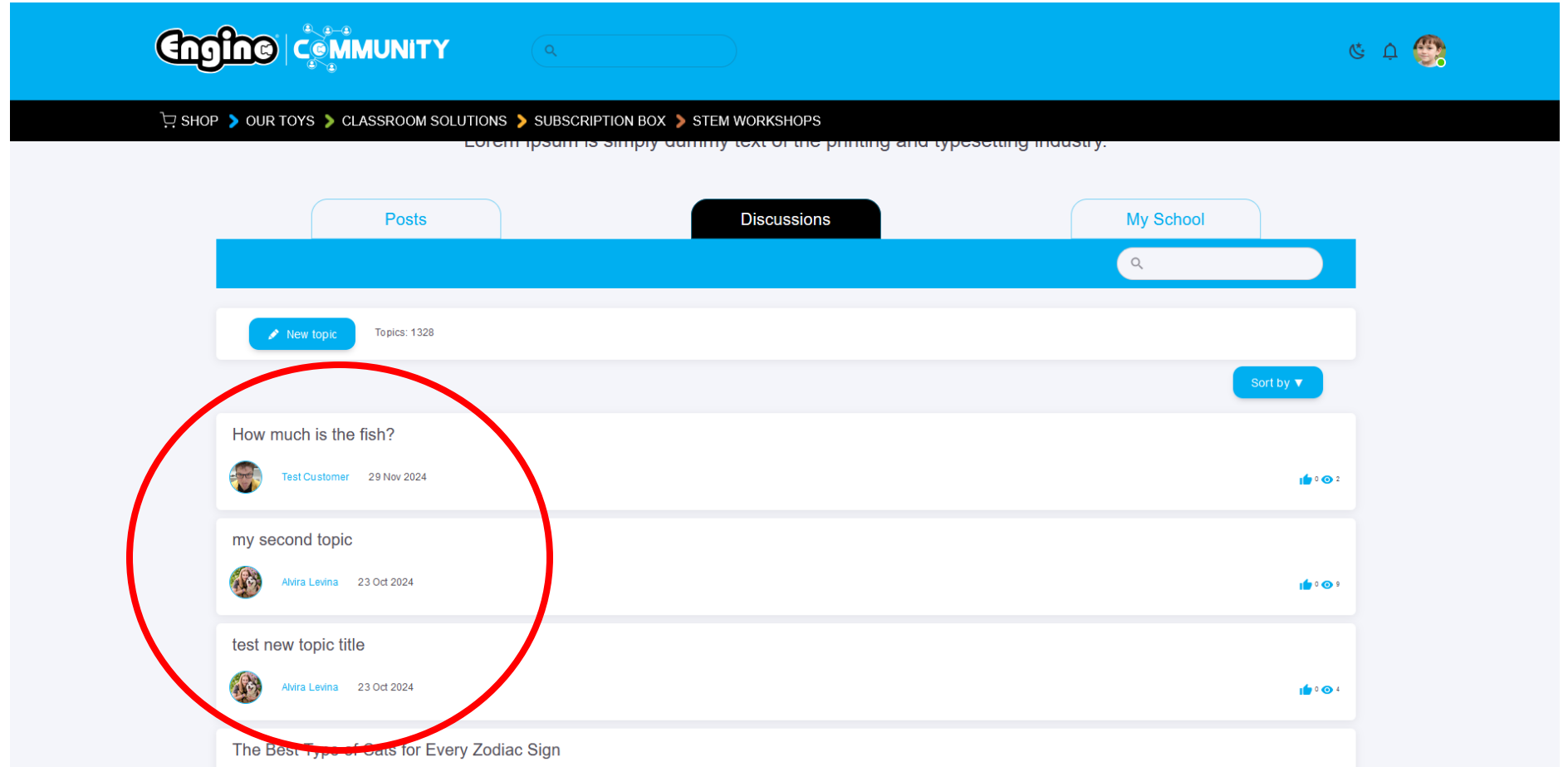
SOLUTION
Online platform
to upload and
share with peers
or teachers on
ENGINE LMS





Solution...*phase 4 (SHARE):*

Develop **community platform** for sharing projects and teacher's lesson plans





Other developments!

Makerspace **classroom furniture** for storage and work benches!





Other developments!

Retail packages as **Toys** for home!





Other developments!

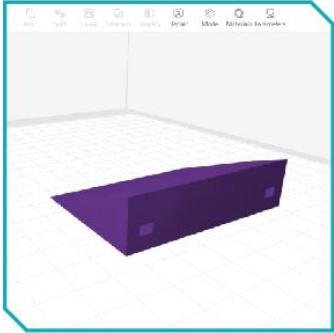
Retail packages as **Toys** for home!



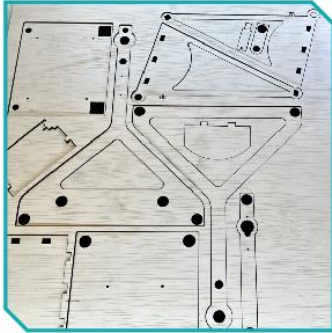
Thank you for **listening!**

Be the teacher of change!

➤ CAD Design & 3D Printing



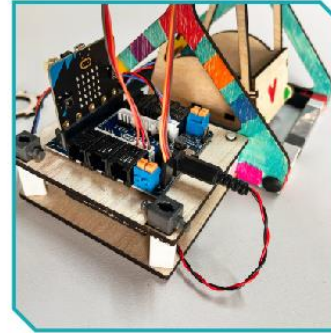
➤ 2D Design & Laser Cutting



➤ Traditional Wood Work



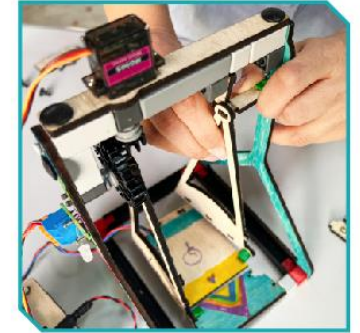
➤ DIY Electronics



➤ Coding & Programming



➤ Assembly & Testing



Presented by:

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www.engineo.com