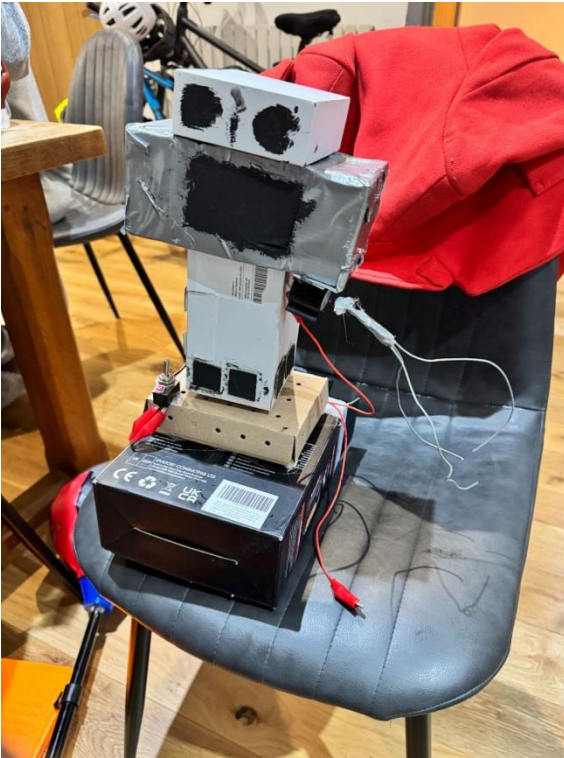


ISA STEAM Competition

Helper Bot: My Recycled Robot

Video Link: <https://drive.google.com/file/d/1IU8A3X6K610Wq1hWySHBZYOOB8mY2R4E/view?usp=sharing>



How It Was Made

I built *Helper Bot* using everyday recyclable materials — from milk cartons and packing boxes to duct tape and household items. I wanted to challenge myself to create something useful without buying new materials, proving that innovation doesn't require expensive tools—it just takes creativity and persistence.

The process started with assembling the body. I carefully selected strong but lightweight materials like cardboard and cartons to form the robot's structure. For the claw, I used a thick wire, bending and twisting it into shape with pliers. I needed the claw to be sturdy but also flexible enough to grip objects, so I experimented with different wire thicknesses before settling on the best one.

To hold everything together, I used a hot glue gun for a firm bond and added black paint to enhance the design and give my robot a sleek, finished look.

But the biggest challenge came when I wanted my robot to move — and not just move, but also spin its claw.

I installed a car mechanism in the lower body to allow the robot to move forward and backward. That part was relatively easy, but getting the claw to spin was a completely different challenge.

I quickly realised that the only way to achieve this was to use a motor. But a motor alone wasn't enough—I also needed a battery to power it, and more importantly, a switch to control it. This meant figuring out the wiring.

At first, it felt overwhelming. I had to connect different components using crocodile clip wires, making sure the circuit was complete. I tested different placements for the motor, ensuring that it didn't interfere with the movement of the robot. Finally, after multiple attempts (and a lot of rewiring!), I successfully

connected the motor to the claw and housed all the wiring inside a hidden box, with only the switch and motor visible from the outside.

Equipment Used

Hot glue gun 🔥

Scissors ✂️

Circuit set 📦

Duct tape 📄

Cardboard 📦

Recycled cartons 📦

Black paint 🎨

Car mechanism 🚗

What Are We Trying to Achieve?

I didn't just want to build a robot for the sake of it — I wanted it to solve real problems in my school. That's why *Helper Bot* was designed with three key functions:

- Sprinkling the fields – My robot can distribute water evenly, keeping the school fields fresh and healthy.
- Picking up rubbish – It can help clean up the environment, making the school a better place for everyone.
- Tutoring kids – Using a brand-new AI-powered teaching system, *Helper Bot* can assist students in their learning.

I wanted my robot to not only be a fun experiment but also something that could make a real difference.

Why I Chose These Materials

I have to be honest—I didn't plan this project far in advance. In fact, I only started three days before the deadline. At first, I doubted whether I could finish it. There were moments when I felt like giving up.

But just as I was about to quit, my mum encouraged me to keep going.

That's when I decided to work with whatever I had around me. I didn't go to any shops to buy special equipment; instead, I reused materials from my house. It was a real challenge, but I believe that's what made this project even more special.

I worked on *Helper Bot* for about two and a half hours every day, making small improvements, fixing mistakes, and testing different solutions. At times, it felt like makeshift engineering, but in the end, I was amazed at what I was able to accomplish using just household materials.

This project taught me an important lesson: **Creativity isn't about having the best tools — it's about using what you have to build something amazing.**

Final Thoughts

Thank you for watching my video and presentation. I hope you enjoyed learning about *Helper Bot* as much as I enjoyed building it. This has been an exciting journey, and I truly believe that my robot can make a difference.

I would be honoured to be considered as one of your top participants.

Goodbye, and thank you!

Isaiah Obasa