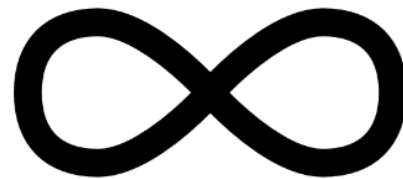
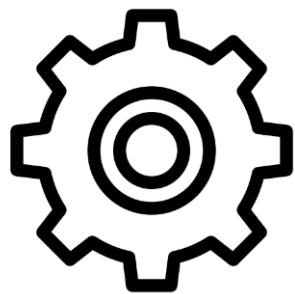
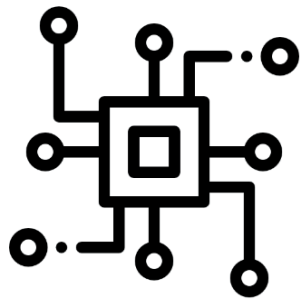
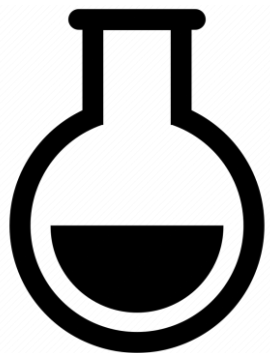
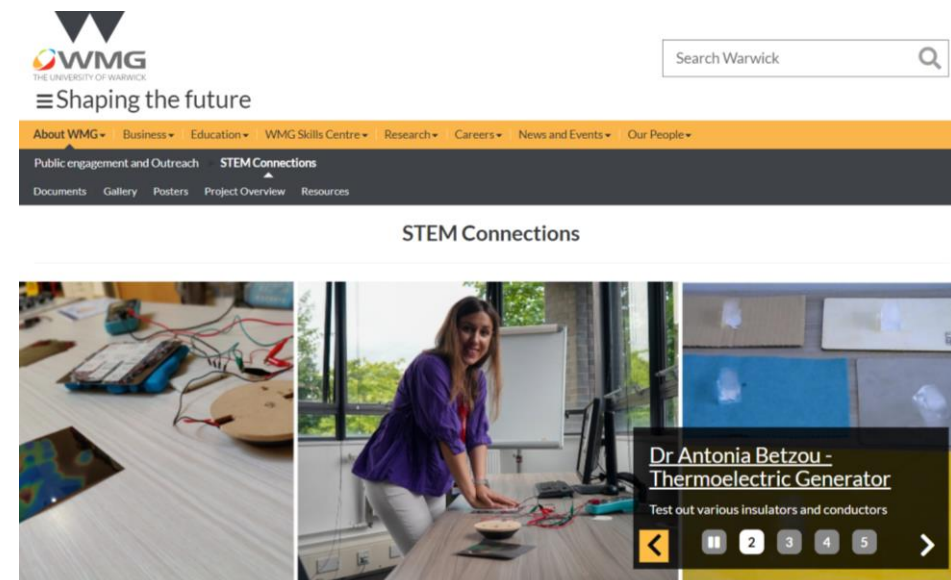


# STEM Connections



# STEM Connections

STEM Connections is a Research England funded project at the University of Warwick that highlights the technology that is being researched at the university, the impacts that research could have on the local population and wider society, and the personal stories of the people involved in that research.



## WELD - Electric Cars



### WELD Team - Jose

Meet Jose Ortiz Gonzalez, an Assistant Professor in the School of #Engineering, working on the #WELD project. He researches power devices in electric vehicles. It's important to share what Universities are doing and how STEM research will impact society.



### WELD Team - Xinkai

Meet Xinkai Jon-Jon Tian, a Ph.D. student working on the WELD project. His research is all about semiconductors and the role they might play in building the sustainable future of transport. Xinkai is sharing his part in the development of Electric Vehicles.

# WELD - Electric Cars



## Umair and Robin

The WELD team's demonstration showed the components of an electric vehicle. What's the difference between fuel burning engines and an EV? Young people were able to play and explore and Umair was able to share knowledge while they did.

# STEM Connections

Meet the Academic

Dr Jose Ortiz Gonzalez

**What advice would you give to someone considering a career in STEM?**

Please remember to have fun! STEM subjects can be hard topics. You will struggle a bit some days more than others. It is important to enjoy the path as you study STEM subjects.

Find out more:



[www.warwick.ac.uk/stemconnections](http://www.warwick.ac.uk/stemconnections)

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THE UNIVERSITY OF WARWICK

# STEM Connections

Meet the Academic

Xinkai Tian

**What inspired you to become an engineer?**

Watching Wallace and Gromit as a child, I was especially fascinated by some of the intricacies behind Wallace's fictional inventions and that inspired me to go into engineering.

Find out more:



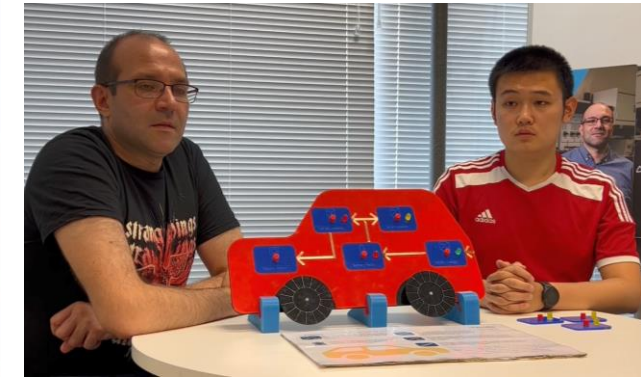
[www.warwick.ac.uk/stemconnections](http://www.warwick.ac.uk/stemconnections)

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SOCIETY

XINKAI TIAN  
POSTGRADUATE  
AMBASSADOR  
22/23

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WIMG  
THE UNIVERSITY OF WARWICK



The WELD team built an electronic jigsaw of electric vehicle components. The 1st step of teaching is engagement and who doesn't love a puzzle? This activity is a great example of how we can inspire people to think about the components hidden from sight.

# STEM Connections

Meet the Academic

Robin T. George

## What advice would you give to someone thinking about a career in STEM?

Don't be afraid to try out new things because you never know what things might interest you. Engineers get a lot of enjoyment from seeing what they actually worked on in real life.

Find out more:



[www.warwick.ac.uk/stemconnections](http://www.warwick.ac.uk/stemconnections)

# STEM Connections

Meet the Academic

Umair Paracha

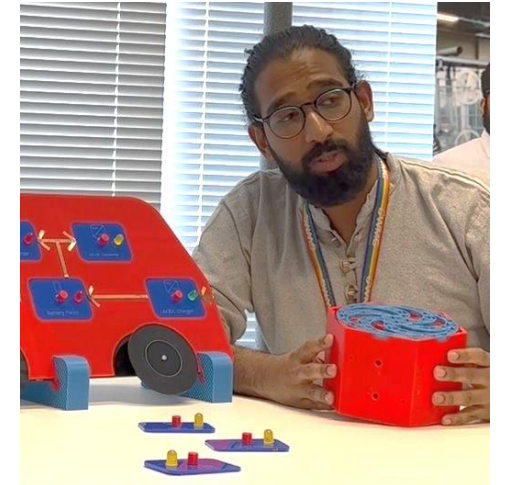
## What is being an engineer actually like?

Engineers use creativity to solve problems and take a project from an initial concept to actual fruition and seeing your idea out there in the real world. The projects in engineering are incredibly diverse.

Find out more:

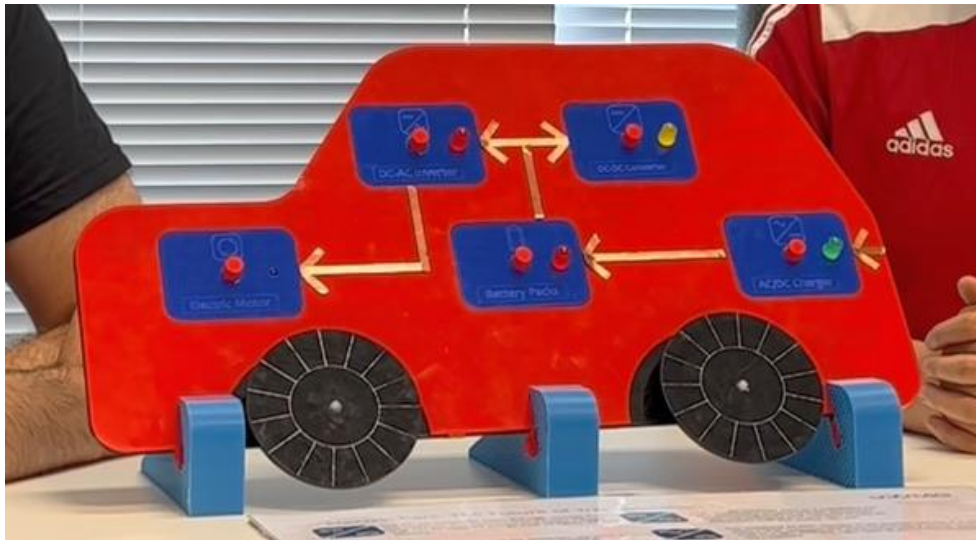


[www.warwick.ac.uk/stemconnections](http://www.warwick.ac.uk/stemconnections)



Robin worked on the circuitry of the jigsaw puzzle electric car so that when students put all the right components into the car in the right places, the lights would come on and the wheels would spin.

## WELD - Electric Cars



### How do electric cars work?

Electric cars are like regular cars, but instead of running on gas, they run on electricity. They have a big battery which stores electricity, and when you plug the car into a special charger, it fills up with energy. Inside the car, there's an electric motor that's like the car's heart. When you press the accelerator pedal, the motor gets powered by the electricity from the battery, and it makes the wheels spin, moving the car forward. Electric cars don't have exhaust pipes, so they don't produce any harmful fumes, making the air cleaner for everyone. It's like having a silent, clean, and eco-friendly engine!

# Making an electric car

## Materials Required:

- 1 Wooden board
- 2 Dowel rods (skewer)
- 2 Plastic straws
- 1 Motor
- 1 Battery (AA)
- 1 Battery holder
- 1 Elastic Band
- 2 Crocodile clips
- 4 Wheels

Hot Glue Gun

## Step by Step Instructions:

1. Cut the plastic straws so that they're slightly wider than the width of the wooden board and stick one dowel rod through them





2. Stick the straws onto the wooden board and add wheels onto each end of the skewer

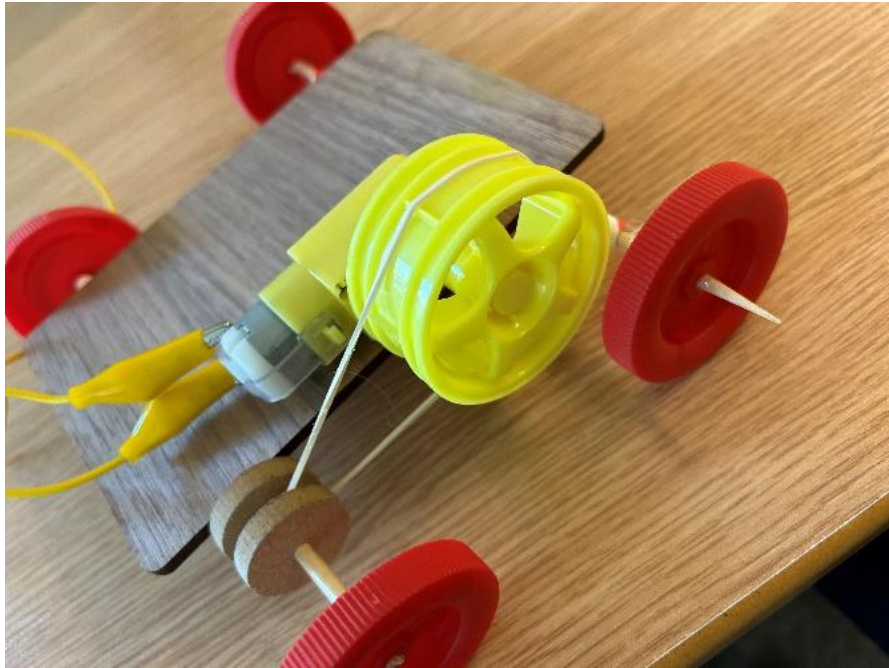


3. On one side of the skewer add two smaller wheels for a pulley system



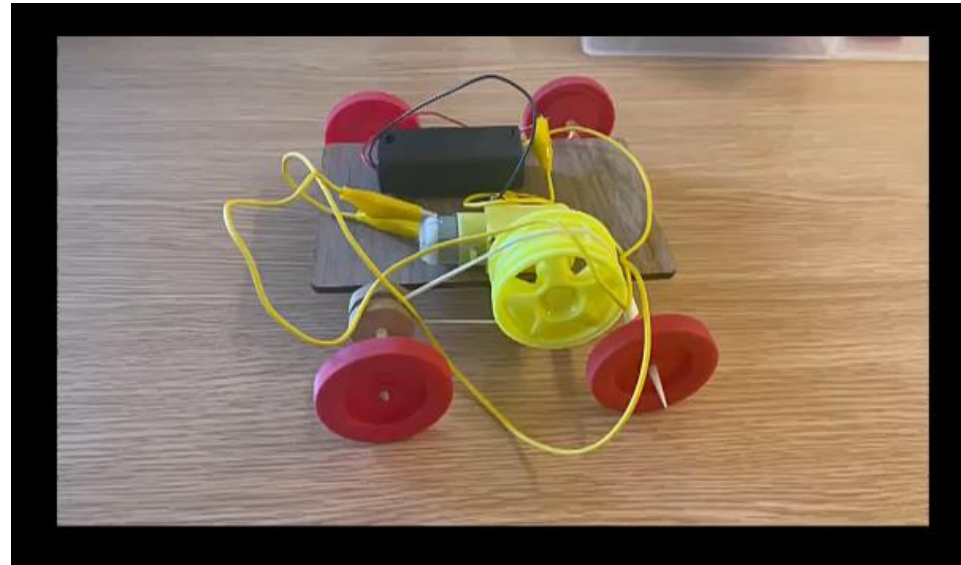
4. Stick on your motor at the top of the wooden board

5. Wrap your elastic band round the motor and ... ensuring there is enough tension



6. Using crocodile clips connect your motor with your batteries to produce a circuit

7. Place batteries on top of car and turn on the switch and watch your electric car go



**Exploring this concept further:**

- How do different size wheels affect how fast the care moves?
- Is there a way to make your own switch?

SECONDARY: Linking Academics area to careers and industry  
Other useful websites

PRIMARY: Linking to subjects offered in Secondary schools  
Maths, Science (Biology, Chemistry, Physics), Design &  
Technology (Engineering)

Thank you!

STEM Connections

