

The background image shows a robot, possibly a LEGO Mindstorms Technic robot, with a purple-tinted overlay. The robot has two large black wheels and a central body. On top of the robot is a blue sensor board labeled 'HC-SR04' with two ultrasonic sensors. The board has three push-buttons (red, green, blue) and several pins. The text 'Meet Violet' is overlaid in large white font across the center of the image. The text 'Powered By The STEAM Engine Co.' is overlaid in white font in the bottom right corner.

Meet Violet

Powered By
The STEAM Engine Co.

About Us

The STEAM Engine Co. is a new startup consisting of a team of Engineering students who are passionate about creating and designing solutions to world problems.

We are working towards a future where every child is empowered to realise their potential to change the world through STEAM (Science, Technology, Engineering, Arts & Mathematics).

Our first module, 'Violet' is a cost-effective and hackable robot to teach coding in Australian schools.

The Kit



Violet

Powered By
The STEAM Engine Co.

LEDs

Students will learn:

- ❖ Sequential Programming
- ❖ Pattern Recognition
- ❖ Basic Electric Circuit Knowledge

Arduino Program

forever

set digital pin 11 output as HIGH

wait 1 secs

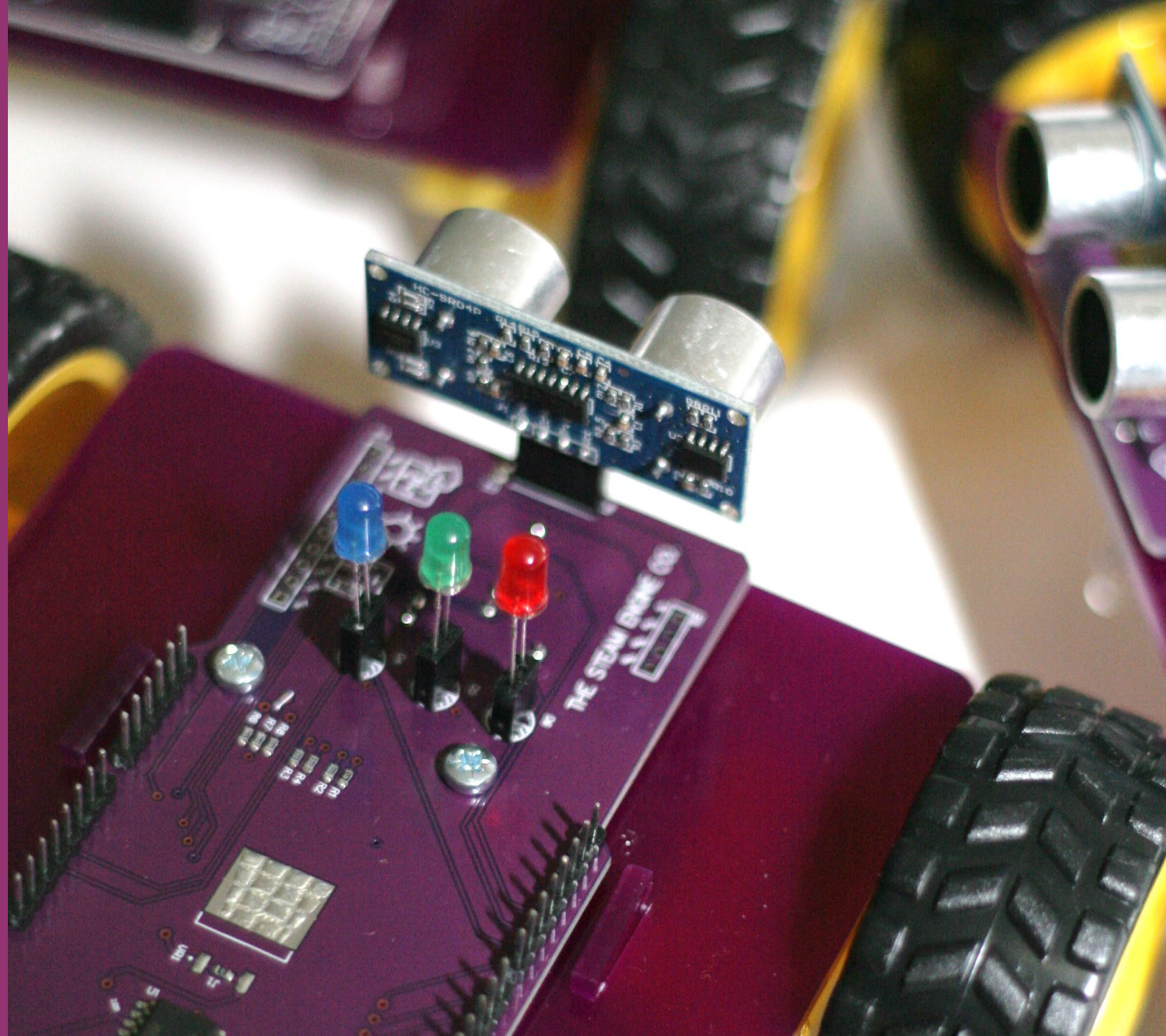
set digital pin 11 output as LOW

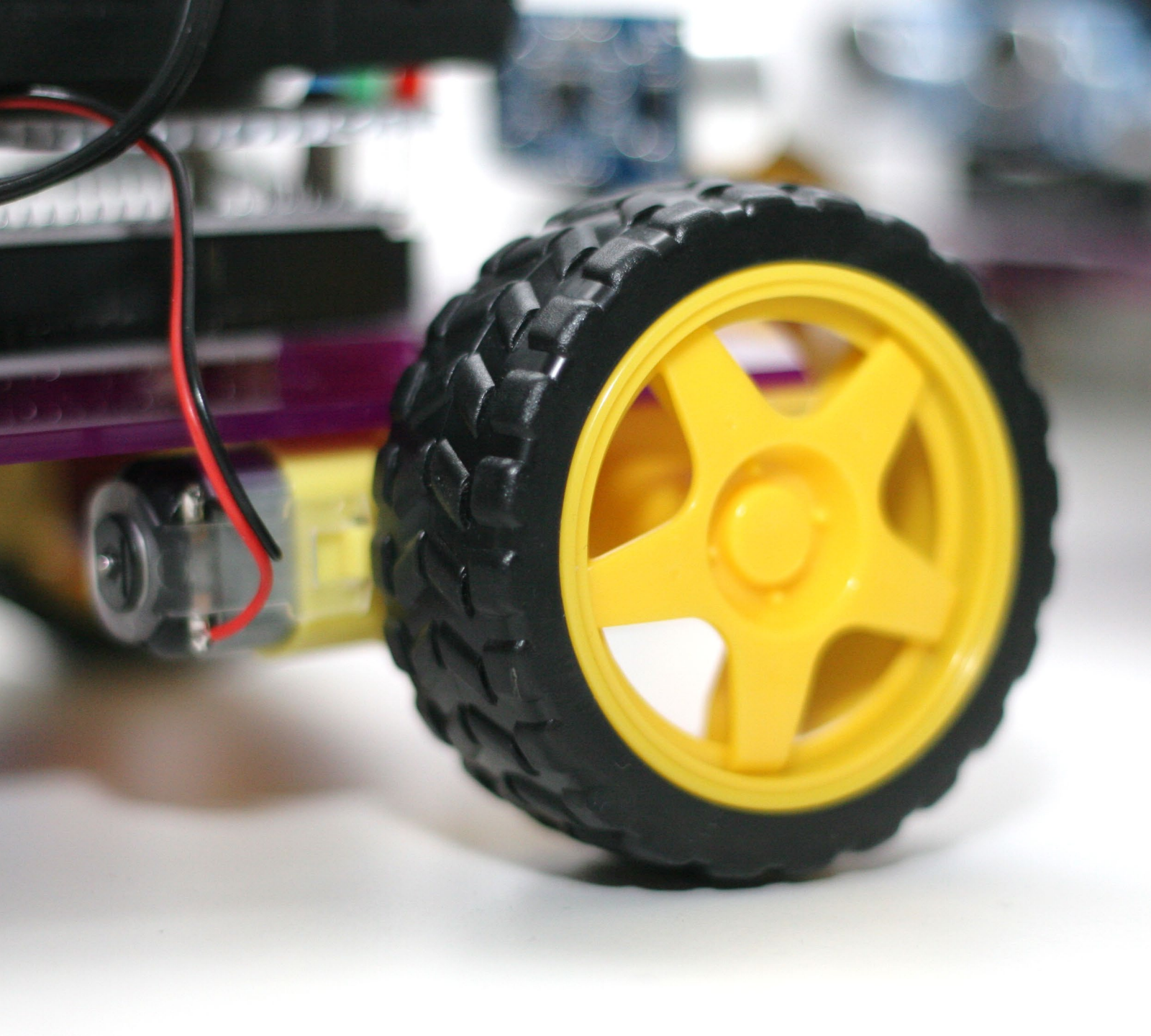
set digital pin 13 output as HIGH

wait 0.5 secs

set digital pin 13 output as LOW

wait 1 secs





Motors/Wheels

Students will learn:

- ❖ Sequential Programming
- ❖ Conditional Programming
- ❖ For Statements
- ❖ Spatial Awareness
- ❖ Trial & Error
- ❖ Math/Physics
 - ❖ I.e. $\text{Distance} = \text{Speed} \times \text{Time}$

```
define motor_RRV5 Speed Time
reset timer
repeat until timer > Time
  set digital pin 7 output as HIGH
  set pwm pin 9 output as Speed
set digital pin 7 output as LOW
reset timer
```

Ultrasonic Sensor

Students will learn:

- ❖ Conditional Programming
 - ❖ Object Avoidance
 - ❖ Object Detection
- ❖ If/Else Statements
- ❖ Math
 - ❖ I.e. Calculating the equation for distance detected by the ultrasonic sensor

Arduino Program

forever

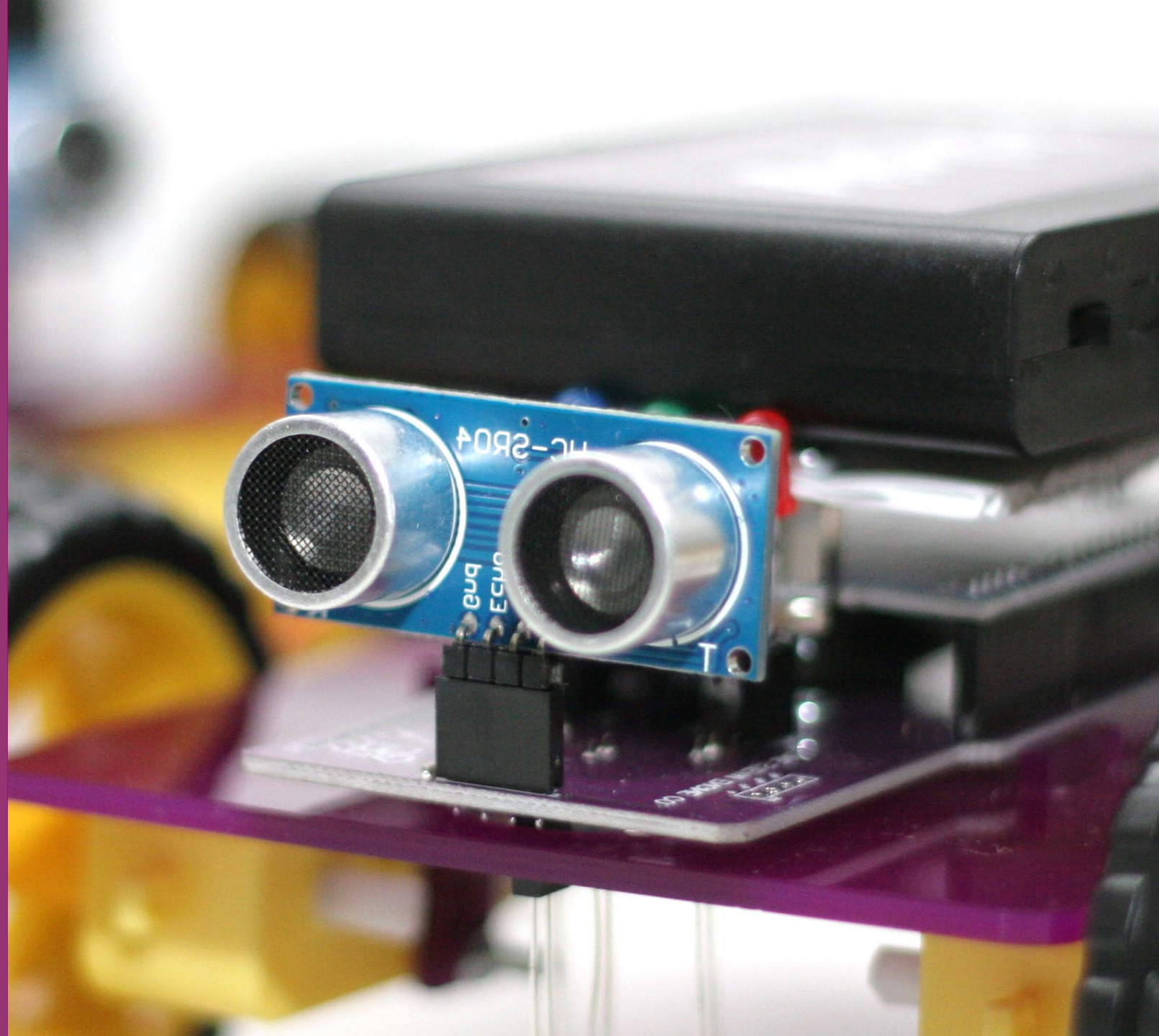
if read ultrasonicsensortrig pin 3 echo pin 2 < 15 then

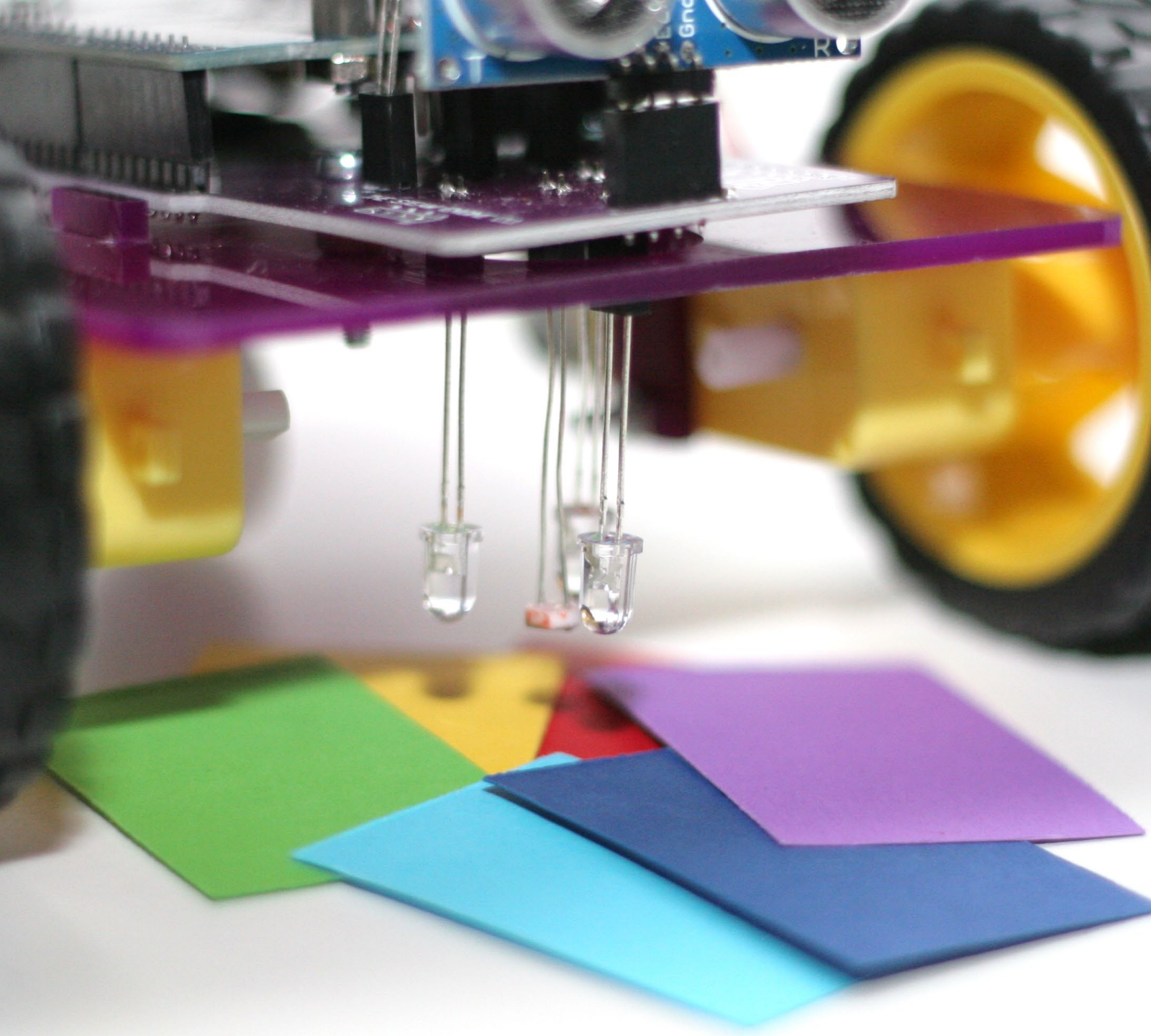
motor_RVS 1 1

else

motor_LFWD pickrandom 1 to 10 1

motor_RFWD pickrandom 1 to 10 1





Colour Sensor

Students will learn:

- ❖ Conditional Programming
 - ❖ Colour Sensor Calibration
 - ❖ Colour Detection (RGBCMYKW)
 - ❖ Line Following
- ❖ Physics:
 - ❖ I.e. Light Frequency
- ❖ Math:
 - ❖ I.e. Distinguishing between colour ranges

```
Arduino Program
forever
  if read digital pin 0 < 500 then
    motor_LTURN 10 0.01
  else
    motor_RTURN 10 0.01
```



Learning Outcomes

Digital Literacy



Digital Technology Curriculum

Learning Outcome Examples:

- ACTDIP019
- ACTDIP029
- ACTDIP030

Violet's primary purpose is to ensure students meet the Digital Technologies requirements in an **engaging** and **cost-effective** way.





Problem Solving



Build Violet

Students will be required to solve the Violet build with nothing but 360° Images of a built Violet.

Design Violet

The final part for Violet's build will require students to create their own design solution.

Code Violet

With the use of Violet's colour sensor, ultrasonic sensor, motors and LEDs, students will learn to code.

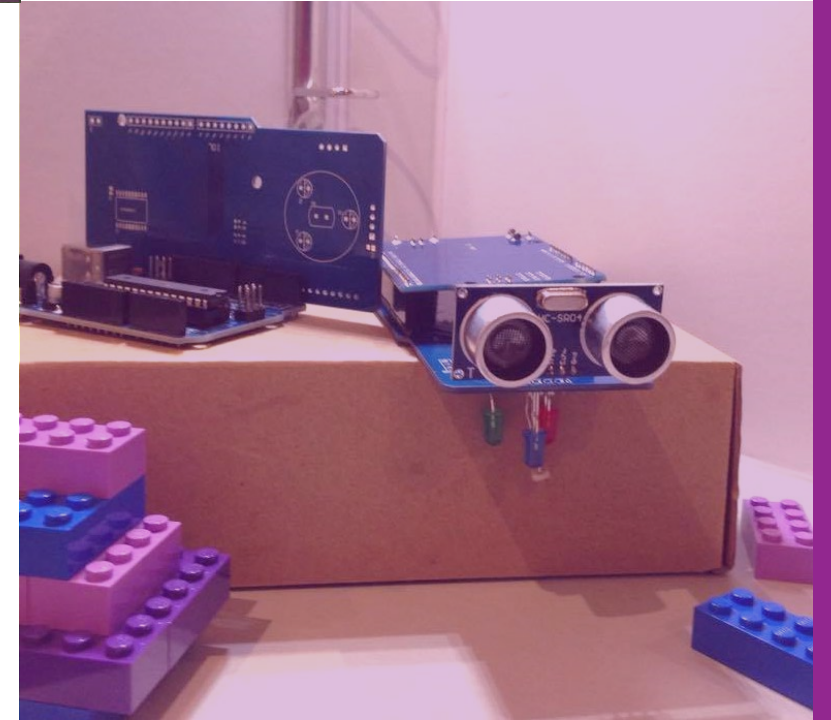
Teamwork



Creativity + Innovation



Communication





For More Info

www.thesteamengineco.com