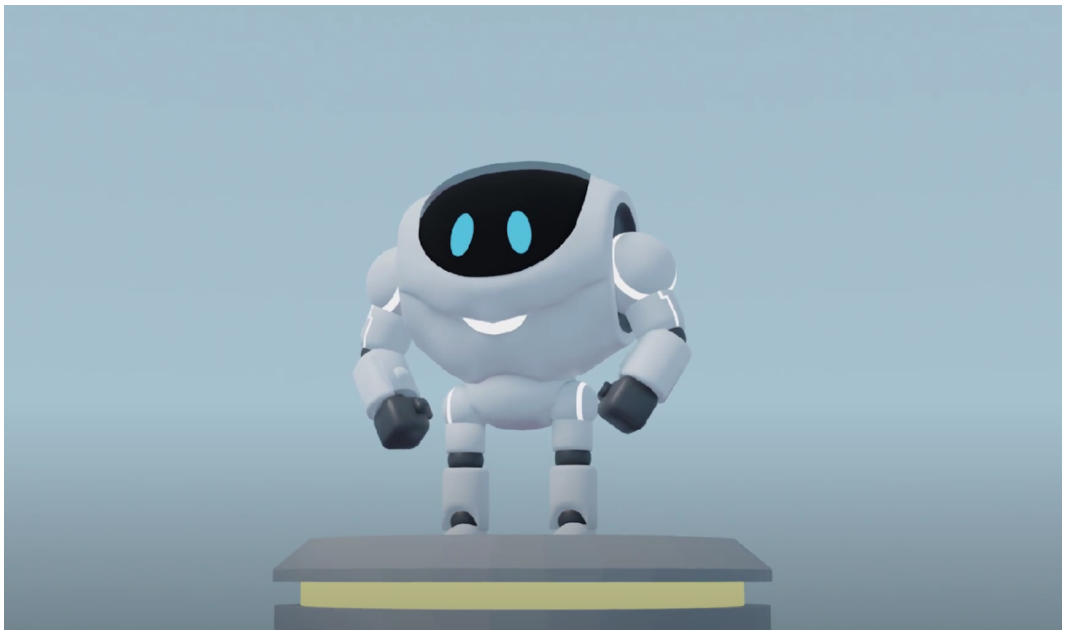
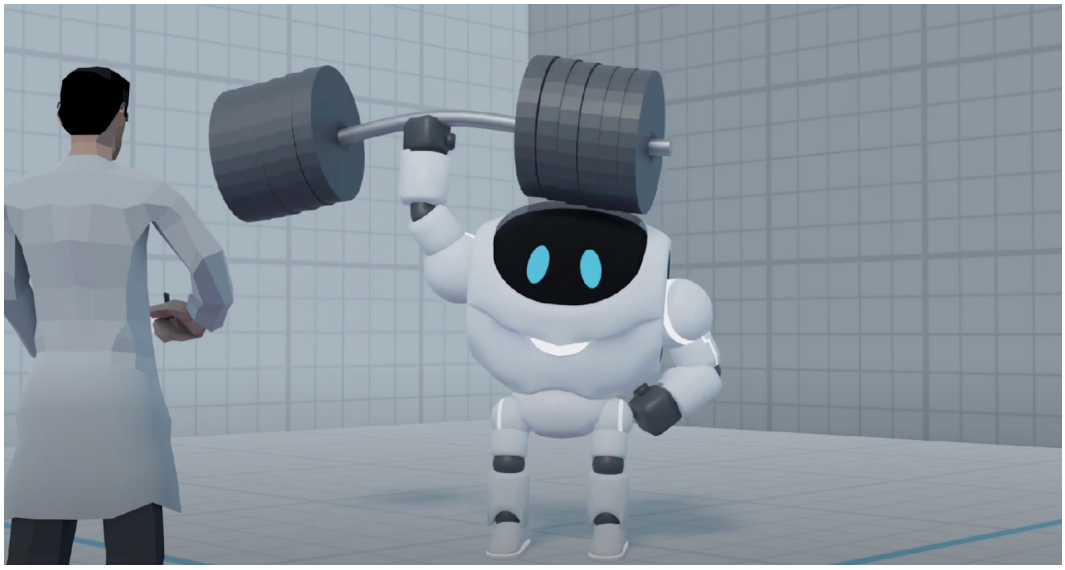
Your mission

So far, we have learnt what programming is and why it is important, seen some of the advantages of automation, and how automation is one application of programming. In this Project, you will be putting some of these concepts into practice by programming a robot to perform a series of tests.

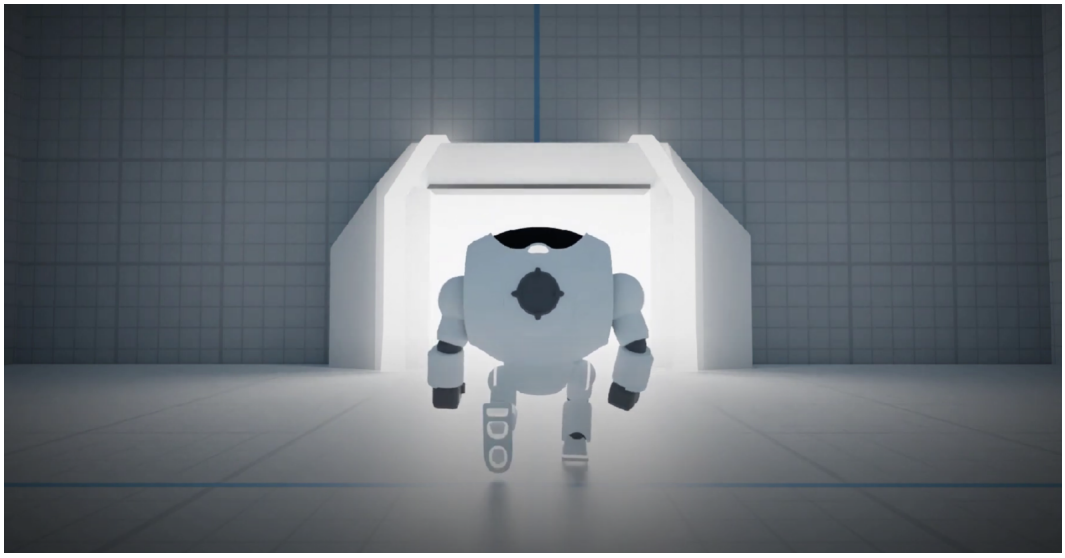


A programmable humanoid robot (pictured above) has been built to help improve people's lives by automating tasks. It has similar movement capabilities to a human. The robot needs to go through a series of tests to make sure that the design is physically capable of performing a wide variety of tasks without breaking.

As part of quality assurance, your job is to write a series of programs to make the robot perform a variety of tasks. You can instruct the robot to perform a task by calling a predefined function block. You will learn more about this process in the Create step.



The robot has already passed the first round of tests, and it is your job to write the correct code to make sure that it passes the second. If the robot can pass all the tests successfully, it will be marked as ready to release into the world to help people carry out everyday tasks. It may be especially useful for individuals whose unique situations make it difficult to perform specific physical tasks.



In this Project, each test will include a new programming concept for you to master. You will Research this new concept, Plan how you will use it to complete the test, and then Code your answer. Each of these Research -> Plan -> Code cycles is called a subsystem:

1. **The Maze**: We will learn what action blocks are and how to sequence them together to enable our robot to navigate through a fixed maze.
2. **Tyre Pumping**: Use sensors and a while loop to repeat the same action multiple times. In this case, inflating a tire to the perfect pressure.
3. **Banana Sorting**: Use sensors to determine the physical properties of a banana, then use this information to make a decision. In this case, that decision is whether or not to pull a lever to sort a banana into the correct crate.
4. **Red Light Green Light**: Combine everything we have learnt so far as well as to cross a road without getting hit by traffic.

Proceed to the Create step and begin the first subsystem to get started with the first test. Your learning journal and/or teacher will walk you through completing each subsystem. When you complete a subsystem, return to the Create step and start the next until you have completed them all!