

Engineering Design (Robotics + Game Development)

Robotics Research Task



Your task is to select, and research, a **particular robot** (or particular robots) that demonstrates a **general topic** relating to robotics (or a type of robot), then create a presentation (e.g. PowerPoint, Google Presentation) about your robot. For example: “da Vinci – the surgical robot”

You can work on this project by yourself or with one other person.

Note: If you don't feel comfortable presenting to the class at this stage, no worries. Someone else (e.g. your teacher) can do it for you.

Your topic can be from the list on the other side of this page or something else entirely, but your robot (and preferably your topic) must be different from everyone else's. You **MUST** have the teacher approve your choice before going further with research.

Your name(s): _____

Your robot/topic: _____

Teacher approval: _____ Date: _____

Presentation Structure

At a minimum, your presentation must include the following slides...

Slide	
1	Title slide with the topic, your name(s), the name of this course – Computing (Robotics + Game Design), and date.
2	Definition of a robot (or the history of the word “robot”)
3	Picture, robot name, and creator (or designer or manufacturer) of the robot you chose
4-6	More information about the robot, e.g. <ul style="list-style-type: none">• Why this robot was created? What was it designed to do?• How does the robot work? What are its limitations/constraints?• Description of movable parts/systems, type of power, controls, etc.• What does the future hold for this robot and/or field of robotics? This is the largest section. BE SPECIFIC.
7-8	Social and ethical issues, e.g. <ul style="list-style-type: none">• Benefits that this robot (or field of robotics) may have on society• Ethical concerns, including possible negative consequences for society
9	References – websites, etc. used for content, including images

Hint: Don't put fancy stuff (audio, animation, transitions, etc.) in the presentation until you are completely done with the content.

Possible topics

Types of robots

Humanoid Robots
Robotic Space Probes
Robot Power Sources
Wheeled Robots
Legged Robots
Talking Robots
Flying Robots (UAVs)
Under Water Robots
Utility Robots
Beam Robots
Insect Robots
Chat Robots
Internet Robots
Surgical Robots
Farm Robots
Shape-Shifting Robots
Evolutionary Robotics
Bomb Disposal Robots

Rescue Robots
Automated Guided Vehicles
Mining Robots
Demining Robots
Salvage Robots
Security Robots
Industrial Robots
Car-Making Robots
Domestic Robots
Aged-Care Robots

Robotic pioneers

Kevin Warwick
Marvin Minsky
Seymour Papert
Eric Drexler
Noel Sharkey
Rodney Brooks
Hiroaki Kitano

Sebastian Thrun
Alan Turing

General topics

What is a Robot?
Artificial Intelligence
Machine Learning
Robot Prosthetics
Robophobia
Cyber Pets
Robot Vision
Robot Noses
Artificial Life
Robot Sensors
Cyberware
Wetware
Animatronics

Assessment

Your presentation will be assessed against the following criteria.

Criterion 1. Describe and apply engineering concepts

- You demonstrate knowledge and understanding of engineering concepts.
- You explain the relationships between components in a robotic system.
- You can answer reasonable questions about the robot/topic.
- It's clear you didn't just copy and paste content.

Criterion 5. Describe the application and impact of engineering on society

- You discuss how a particular robot meets needs in society.
- You explain social, economic, cultural, and ethical issues related to your topic.
- You raise some interesting/thought-provoking points, including positive and negative impacts.
- You argue reasoned, valid conclusion using relevant data.
- You include positive and negative impacts.

Criterion 8. Apply skills to organise and complete activities and communicate information

- You make good use of images
- Text well chosen, easy to read
- You select and correctly use accurate terminology to clearly communicate key concepts and ideas.
- You accurately record sources of information
- Good use of the notes function
- You talk to the audience – make eye contact!