

# Design and Development of a Humanoid Robotic Head

Open-source, Accessible, and Affordable!



Total System Cost:  
**~ £230**

## Project Overview

This is BEATRIX, the first humanoid robot aimed at being fully developed at the University of Bath.

Here are some of its features:

- 3D Printed
- Accessible components
- Expandable architecture



## The Eyes

- Mechanism selected and designed to be light, compact and enable 2 degrees of freedom for each eye
- Use of MG90 servo motors
- Cameras provide HD vision for future image processing purposes



## The Neck

- Spherical Parallel Manipulator (SPM) designed for full 3 degrees of freedom
- High torque and accurate stepper motors
- Custom 3D printed thruster bearings and gears for the desired characteristics



## Electronics Architecture

- Arduino Uno selected as motor microcontroller to align with project goals
- Customisable control algorithms through PC and Arduino scripts
- 12V power supplied with LM2596 for 5V power to servos

