

Design of an open-source 3D gantry system for automated metabolic assessment (and drug delivery) in cell culture

Description

Biomedical research largely relies on culture of cells in standardized arrays of culture wells (e.g. 96-plate). To measure biological function, or even just to feed the cells, often requires removing the cells from their preferred (incubator) environment and time-consuming manual handling.

The aim of this project is to design a robotic gantry system that can operate *inside a cell culture incubator* to measure metabolic function and dispense/exchange liquids. The goal is to use standard, low-cost components and provide an open-source design to make it accessible to academic laboratories worldwide.

You will:

- Learn about key aspects of cell culture, including cutting-edge organ-chips
- Draw up specifications for gantry construction, evaluate component suitability (starting points: literature & 3D printers), and generate a full design document
- If time allows, implement gantry construction and/or robot programming

You should:

- Be highly motivated and creative, able to work independently, open to feedback
- Have a relevant educational background (mechanical engineering)

Start: By arrangement
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 please apply with CV, transcripts, and letter of motivation



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