



MICROSCOPE ENABLED 3D BIOPRINTING SYSTEM

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Inventors: Alexander McGhee, Christian Franck

The Invention

UW-Madison inventors have developed a device that controls a series of actuators mounted onto various inverted microscopes (i.e. Nikon TiE II) to add 3D bioprinting and pick and place capabilities. This device takes advantage of a mounting bracket common to all inverted microscopes meant to optically align a light source to a needle while controlling its axial position. One or more syringes are also mounted to the device and the plunger of each syringe is independently actuated to extrude or extract fluids from the aforementioned optically aligned needle. Finally, most inverted microscopes utilize a motorized x,y stage with nano positioning capabilities. A software package communicates with the microscope xy stage as well as the on-board motor controller which actuates the syringes and needle to set the x,y,z position and syringe actuation in real time. This system also controls the gas flow and temperature within an incubation chamber which accompanies the printer. Further development of control software could enable automated manipulation of cell culture systems with the incorporation of ML/AI techniques.

Additional Information

For More Information About the Inventors

- [Christian Franck](#)

Tech Fields

- [Research Tools : Other research tools](#)

For current licensing status, please contact Michael Carey at mcarey@warf.org or 608-960-9867