Industrial Automated System for Plant Tissue Culture Processing (1/2): Media Preparation

Status: Filled

Group Members: Ka Bo Law, Gordon Wu, Edmond Chow, Andrew Chan, Taqdeer Cheema

Sponsor(s): Segra International Corp.

Supervisor(s): Dr. Ed Park, PEng, Director, Mechatronic Systems Engineering
Dr. Sma Zobayed, Director, Segra International Corp.

Project Description

Micropropagation is an advanced vegetative propagation technique for producing high quality and disease-free plants in a short time period. With the increasing demand in agriculture, horticulture, and medical applications, micropropagation has become increasingly important in plant tissue culturing. However, this process is very tedious and labour intensive. Segra is a BC company that specializes in tissue culture and genomics of plants, including cannabis micropropagation. The company is building a new state-of-the-art tissue culture facility and desires to automate the following tissue culture processes for increased production capacity: (i) media preparation and (ii) media cleaning. This capstone project pertains to the former, which consists of the following components:

- o Media dispensing
- o Vessel capping
- o Assistive/automated loading onto autoclave trays
- o Assistive/automated autoclave unloading into culture trays

The capstone team will develop a production-ready automated media dispensing system that can be tested and installed in Segra's new facility. For more information regarding the project, please contact Dr. Park (ed_park@sfu.ca).

Required Skills:

Professionalism; committed, punctual and teamwork
Good communication skills (oral and written)
Knowledge of manufacturing automation
Knowledge of controls systems
Knowledge of robotics
Knowledge of sensors and actuators
Knowledge of SolidWorks

Great to Have Skills:

Experience with PLCs and/or PLC programming languages