



PARAVENTRAL LIGHTING SYSTEM FOR PLANT GROWTH OPTIMIZATION

Nithilam Subbaian
EE'20

Professor Alan Wolf
FACULTY ADVISOR

The goal of this project is to study the feasibility of speeding plant growth by lighting plants primarily (or supplementarily) from their underside. We are designing an LED-based light fixture that permits wide variations in the orientation of light sources for flowering plants. To facilitate the rapid development of an optimum prototype, we will focus on the extremely rapidly growing plant "Brassica Rapa" (seed to maturity in N days). Rates of plant growth as well as environmental factors will be monitored by a number of sensors (temperature, humidity, luminosity, video) attached to a data acquisition system. An algorithm will be designed to maximize the rate of plant growth, taking into account the requirements of the particular plant species, as well as any ambient light sources that may be present. A small greenhouse has been setup in the Physics storeroom (302) and B&G has been maintaining that space at a constant temperature and humidity. There are implications of this project both for ornamental plant growth as well as the development of food sources.

