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(54) **Title:** LUMINAIRE SYSTEM, METHOD AND APPARATUS FOR OPTIMIZING PLANT GROWTH IN A CONTROLLED FARMING ENVIRONMENT TECHNOLOGICAL FIELD

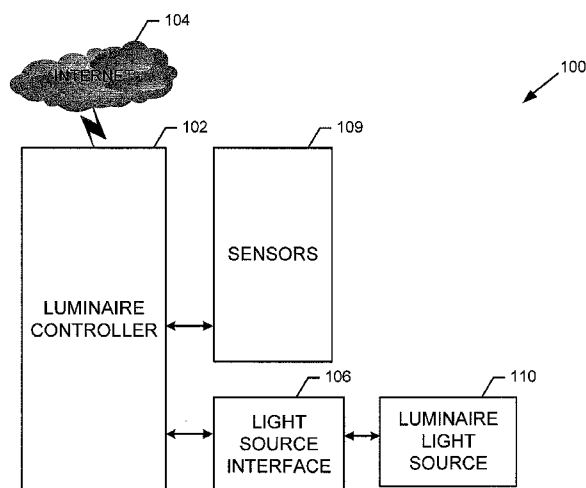


Figure 1

(57) **Abstract:** A luminaire system, apparatus, and method of using thereof, is disclosed for optimizing plant growth in a controlled farming environment. Different types of plants have different light requirements, and different inputs to controlled farming environment have different costs. For example, there may be certain times of day where, if power is not used, a cost savings is realized. Thus, the present invention provides a luminaire system for these controlled farming environments that receives light requirement information for the different types of plants, and in turn, adjusts the luminaire light source (110) via a luminaire light interface (106) to based on the light requirement information. The light requirement information may include spectrum information for the type of spectrum required or needed by the plants, power cost or savings information, or light quantity information representing the maximum amount of light to be provided to the plants in the controlled environment.