HYDROPONICS FARMING APPARATUS, AND SYSTEMS INCLUDING THE SAME

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority to Hong Kong Short-term patent application Ser. No. 32021040786.4, filed October 20, 2021, entitled “Hydroponics farming apparatus, and systems including the same,” hereby incorporated herein by reference as to its entirety.

FIELD OF THE INVENTION

[0002] The present invention relates to hydroponics farming.

BACKGROUND

[0003] There are growing needs for fresh food in the world. Food shortage may be caused by various reasons, such as population increase, climate change, insufficient investment, lack of talents in the industry, etc. Many regions depend heavily on external food supply. Take Hong Kong as an example. According to statistics, 95% of food supply are provided from other countries or regions. Hydroponics farming has been developed to increase food supply, but the existing systems are still unsatisfactory.

[0004] New farming apparatus, system, and methods that assist in advancing technological needs and industrial applications in hydroponics farming are desirable.

SUMMARY

[0005] According to one aspect of the disclosure, it is provided with a hydroponics farming apparatus for plant production. The farming apparatus comprises a frame configured to define an interior space for farming one or more plants, a plurality of functional systems configured to facilitate farming of the one or

more plants, a first plurality of sensors configured to monitor conditions associated with farming of the one or more plants, and one or more modular storage cabinets removably attached to the frame. The one or more modular storage cabinets include electronics that are pre-assembled and configured to communicate with one or more of the first plurality of sensors and the plurality of functional systems. The one or more modular storage cabinets further include interfaces that are pre-constructed and configured to interface with one or more of the plurality of functional systems. The electronics includes a main controller configured to collect data from the first plurality of sensors and provide instructions related to controlling of the plurality of functional systems.

[0006] According to another aspect of the disclosure, it is provided with a hydroponics farming system for plant production. The hydroponics farming system comprises at least one hydroponics farming apparatus for farming one or more plants, each of the at least one hydroponics farming apparatus including one or more modular storage cabinets removably mounted within the hydroponics farming apparatus, one or more networks, and a cloud server communicating with the at least one hydroponics farming apparatus via the one or more networks. The cloud server includes a storage for storing data received from the at least one hydroponics farming apparatus and an artificial intelligence processor for processing the data based on an artificial intelligence algorithm to obtain processed results. The cloud server is configured to generate instructions based on the processed results and provide the instructions to the at least one hydroponics farming apparatus for controlling farming of the one or more plants.

[0007] Other example embodiments are discussed herein.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] Figure 1 illustrates a hydroponics farming apparatus according to an example embodiment of the present invention.