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(54) Title of the invention : A SYSTEM AND METHOD FOR MONITORING AGRICULTURAL CROPS BASED ON IOT (INTERNET OF THINGS) AND DEEP LEARNING MODELS (CNN) AND PROVIDING CROP DISEASE RESOLUTION USING THE SAME

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(57) Abstract :

Abstract A system and method for monitoring agricultural crops based on IoT (internet of Things) and deep learning models (CNN) and providing crop disease resolution using the same The present invention relates to the field of Internet of Things (IoT) and monitoring of agricultural crops. More specifically, the present invention relates to the field of automatically monitoring and alarming the farmers regarding abnormal situation in current crops of the agricultural field. In today™s world, with the advancement in technology, monitoring and improving farming yield with the use of the current technology will boost the growth of a nation as well as individual farmers. The present system is a combination of various sensors, server, database, client devices and farming expert devices. The agricultural field contains various kind of sensors e.g. soil moisture sensors, environmental humidity sensors, rain sensor, temperature sensor, air-flow sensor, a camera unit and soil nutrients determination sensor. These sensors are operated by solar powered battery. These sensors use ZigBee chip integrated wireless sensors and data collecting modules and communicates to server through wireless communicating modules. The sever collects data at predetermined intervals and analyses the said data. The server machine utilizes the data from the database and database is equipped with initial data about agricultural aspects. Further, the server machine is trained on the data from the database through deep learning algorithm based on convolutional neural network (CNN) having two or more layers for making an artificial intelligent model to suggest the individual farmers regarding growth of the current agricultural crop. The collected data from various sensor modules is analysed by the analyser module and alarm the individual farmers regarding their individual agricultural fields based on the results of the analyser and individual farmers act accordingly. The individual farmers are already linked with their corresponding agricultural field based on the registration done on the server machine. The proposed system also provides the feature of providing expert advice in need. If the server alarms any abnormal situation to an individual farmer about crop and suggest for an expert advice. The server then sends the query or abnormal situation to the farming expert if requested by an individual along with the images of the agricultural field taken by camera sensor to aid in providing suitable advice. The suggested advice by the farming expert is then forwarded to the client device by the server to act accordingly. The alarms and advice may be provided to the client device as per the language selected by the individual for communication and the server machine is equipped enough to translate and provide the alarms and advice to the individual farmer in their selected language. The said service may be paid service. Further, the database and server machine trained using the suggestion received from the expert device for future use. This will drastically improve the yield of agricultural filed and provide easiest resolution to the crop disease with the use of the technology. Thus, the present system automatically monitors the agricultural crop field at predetermined intervals using deep learning models and alarm the individual farmers and provide the resolution to crop disease on the go.

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