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Cold Automation Storage

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ABSTRACT:

Cold chain is one of the important tools for farmers of perishable produce, pharmaceuticals to connect with markets and to realize meaningful productivity. A dearth of continuous electricity, absence of any warning systems, and labour power add to the troubles of cold storage owners. A smart IoT connected device which acts as data acquisition device and a controller serves the problem solution. Food spoilage and subsequent imports can be reduced by modernization of storage and warehousing facilities through industrial automation and remote control systems. But due to lack of technology and ignorance about humidity and temperature effect on raw foods; many times, food safety is not maintained well enough. In food industry, cold storage is a must, this kind of storage is to preserving the raw foods within for a certain period of time. For Food or Argo industries monitoring of the foods or materials which are rotten able are subject to constant monitoring; if just a simple thing goes wrong then it can become a result of a big loss. A home grown solution to industrial automation that is cost, energy, and resource efficient with standard automation, control and communication features.

INTRODUCTION

Food is considered as one of the essential things for our lives. It is important to reduce food waste and increase the production-consumption ratio. Storage and warehouse are very important part of industry, as they are the source for providing raw material to major industries by storing in the preserving for long time. Continuous growth in the cold chain management has been reflected in the growth of globalization. Shortage of government owned cold storages and cold storages owned by mostly the upper-class people in towns, making it unavailable for the poor or low-class farmers. A storage facility should maintain the proper environmental conditions of the stored Product. For instance to store fruits, low temperature, in order to maintain quality, improve their shelf life and extend marketing period of fruits to control of environmental studies. Quality of fruits and vegetables has huge impact of surrounding during storage, we can only maintain the quality of fruits and vegetables therefore it is important to store it in proper ecosystem. For storage of food items in a cold storage various measurements are required to record the temperature, humidity and other factors in different parts large cold storage to make the automation work effectively. A proper storage mechanism should be incorporated to avoid the food wastage. Demand can irrespective of seasons which in turn avoids fluctuation in price of the product. For the optimization and for enhancement of working condition of cold storage, it is necessary to be automized. Due to automation it results in increase in product marketing and increase in profit of companies, for this purpose automation of cold storage is necessary.

LITERATURE SURVEY:

1.This paper outlines a remote monitoring system of temperature, humidity, gas and light control for cold storage warehouses. Food spoilage and subsequent imports can be reduced by modernization of storage and warehousing facilities through industrial automation and remote control systems. A home grown solution to industrial automation that is cost, energy, and resource efficient with standard automation, control and communication features has been developed and presented in this paper. Experimental results reveal the scalability, objectivity, accuracy, stability, economy and ease of deployment of developed system.

2. K. Zhang and J. Liu, Study on Human-simulated Intelligent Control Method of Fruit &Vegetable Cold Storage, 2009.

Food spoilage and subsequent imports can be reduced by modernization of storage and warehousing facilities through industrial automation and remote control systems. A home grown solution to industrial automation that is cost, energy, and resource efficient with standard automation, control and communication features has been developed and presented in this paper. Experimental results reveal the scalability, objectivity, accuracy, stability, economy and ease of deployment of developed system.

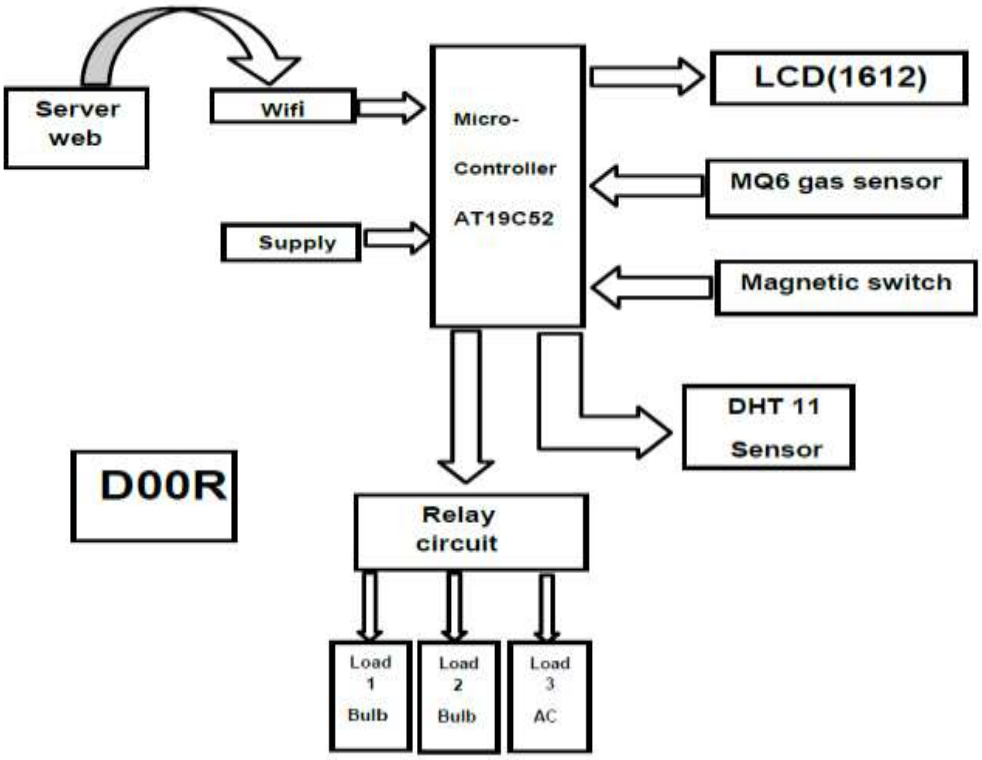
3. Abel Avitesh Chandra & Seong Ro lee. (2014, June). Advanced Monitoring of Cold Chain using wireless sensor network and sensor cloud infrastructure. In International Electronic Conference on Sensors and Applications. The Internet of Things paradigm is a new research field which connects the physical world objects to the internet and allowing easy access to these objects in order to monitor and manage them. The objects are associated with unique identifiers and capability to transfer data over network without the intervention of humans and traditional computers. Wireless sensor networks play a major role in this paradigm in relating the physical object data to the internet. This paper explores the idea of IoT to enable the monitoring of cold

supply chain through the deployment of wireless sensor network in logistics and cold storage facilities and integrating them to the Xively sensor cloud for a complete monitoring and end-to-end visibility.

4. R. Freitas, F. Soares, V. Vieira, J. Machado," Monitoring and Control of a Cooling System in a Commercial Store," *The world congress on engineering*, vol. II, June 30-July 2 2010, London, UK. This paper presents a case-study for the optimization, the monitoring and the automatic control of a refrigeration system in a commercial store. The existing controllers were replaced by Omron temperature controllers, connected to an industrial network and linked to a central computer for data monitoring and temperature **control using a Lab View software. In case of an alarm occurrence, this system includes a routine that** automatically sends a GSM message to alert the person responsible for the store. This functionality is not yet available in commercial system.

5. Koo, P. S., & Ho, H. Y. (2016). An IoT-based Occupational Safety Management System in Cold Storage Facilities. In the contemporary strategy of cold chain logistics, cold storage plays an important role to keep the inventory under the extreme environmental conditions. As the demand of cold storage services is growing rapidly nowadays, attention paid on occupational safety of warehouse workers is increasing under extreme working environment. Traditionally, the safety of workers are assessed by their experience and personal judgement. Without automatic data capturing tools, it is hard to monitor the actual health status of workers who may be dangerous when working too long in the cold storage facilities. In addition, there is a lack of prompt signal to managers and first-aid teams for instant treatment when the workers get cold injuries or illnesses. Therefore, the real-time health monitoring and positioning of the workers are in need. Nowadays, Internet of Things (IoT) is a mean of real-time interconnection system in which target objects are equipped with the identifying and sensing technologies.

BLOCK DIAGRAM:



(1)

RESULT AND CONCLUSION:

This paper presents the IoT to ensure the occupational health and safety by the adoption of BLE hand-band to capture the real-time information. The duration limited exposure and monitoring review cycle can be customized according to personal health status of workers, and real-time workers' positioning can be estimated**.**

This protocol model is planned for checking the environmental conditions of cold storage warehouses. Management of these warehouses is simplified by the use of Internet of Things. These warehouses are consistently monitored in real time by the owner. Wireless monitoring has casted a huge impact on the evolution of new standards and technology in this era of automation. Hence the cold storage monitoring system forestalls the food item stored in it from getting decayed. Automation of schedules is vital for all food safety related task.

FUTURE SCOPE:

1. By automation of cold storage there is increase in profit.

2. It creates Job Opportunites for skilled technicians.

3. Plays main role in developing of food sector.

4. It will be time saving for ripening of banans.

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