

Dr. House - Warehouse Manager

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Abstract - Dr. House is a website interface which helps user to track, control, monitor and maintain a warehouse. The website interface acquires from two types of IoT devices one for ambience control and the other asset tracking, with the help of http get and post requests. The main USP of Dr.House is it's online recommendation, which helps user to order good from online retail stores whenever times are urgent and adequate quantity of goods aren't available.

I. INTRODUCTION

There are many different meaning to Internet of Things but perhaps one of the most succinct is from the McKinsey Global Institute which defines IoT devices as those that “can monitor their environment, report their status, receive instructions, and even take action based on the information they receive.”

Perhaps a more elaborate meaning would be :

- Sensors to track and measure the activity that is taking place.
- Connectivity to the Internet is contained in the object itself, a connected hub, a smart phone, or a base station.
- Processors that enable the object to have at least some computing power.

Here's the problem statement we have decided to tackle:

- Tracking and monitoring shipments in real time using a combination of sensors and connected devices can significantly enhance a company's ability to optimize efficiency.
- Automatically recognize the need to order and restock a product helps reduce the need for human interaction.

II. FUNCTIONALITIES

A. Warehouse Manager

The web service allows user to add fields for multiple warehouses and then add products to the warehouses, this

comes with built in fields of date on which added, quantity of it and it's present latitude and longitude.

So, whenever the user wants to access this data, it comes in handy as well as updating it is easy and convenient.

B. Asset Tracking

With the Warehouse section having the field “Latitude” and “Longitude”, we have integrated a critical asset tracker.

This facilitates on the tracking if the asset is being shipped from one place to another. The fields are used by our GPS tag (refer hardware section) to do a POST request and update in every period hard coded on it. This time period is set by the type of batteries connected to it.

C. Online Recommendation

The Backend facilitates the user with Online Recommendations from Online Retail websites like amazon, flipkart and grofers . All the products that are added in the inventory store list, are sent through a query to these websites and the response is stored and segregated so that the systems recommends all these below save objects. Hence if the user feels the urgent need he can quickly order from the same responses.

D. Control

The User interface comes with a Control panel with comes with a user friendly panel for a informative status of Air Conditioning Systems, Switches, Forklifts and other appliances

Besides observation, one can control these appliance provided they are attached to our IoT device.

III. HARDWARE

A. Controllers

1. Ambience Control

The most robust controller that I have ever known is the Node MCU which has a esp8266 processor and built Wi-Fi, which is preferably used in a lot of application, with 9 Digital Output pins we can sustain a controlled environment for the warehouse and it's appliances, besides having a remote access to everything from the Interface

2. GPS tags

With this being a outdoor application, we refrain ourselves from using the NODE mcu esp866 but rather we designed another module consisting of a GSP module - GSM SIM800L powered by a Arduino Nano With persistent get queries from the module the interface is updated frequently, ergo assisting the user from access data pertaining to shipments of products with which these tags are attached.

B. Sensing

We acquire temperature control via LM35 which can be used to measure temperature levels at 3.3v from the Node MCU.

Moving on to other parameters like Humidity, DHT-11 is used with a digital read on the same processor

For Critical Spaces where human intervention can be dangerous we added a proximity switch which alarms the person entering that zone, switching off the instrument and later updating the incident on the interface

IV. BACKEND

The backend runs a php script which runs on 000webhost domain.

It is basically a web scraper, which first uses the Google API, Google Maps Geocoding API which provides a

place for the Latitude and Logitude sent by the GET request of the GSM 800L module. This gives a response in a JavaScript string about the place the user is and then the user is notified via the interface.

The other scripts use MySQL and PHP forms to create a fast updating systems for keeping a track of all the objects saved in the Inventory window.

V. Domestic Applications

A lot of consumers who don't relate to an industrial approach can perceive the system as analogous to a fridge.

With a online recommendation for the same way, we can inform the user when he/she needs to go buy groceries and what all things can be made out of whatever's left in the fridge.

CONCLUSION

We believe this smart inventory manager will be very interactive and simple to keep track of the inventory anywhere, be it large ware houses or any simple home which needs help with day to day tracking, it will be a differently abled friendly product so anyone can operate it, we have provided the control over a website/web application so it can be updated from anywhere at anytime.

In Conclusion, the next great wave of Internet-enabled innovation has arrived,

and it is poised to revolutionize the way humans interact with the world around them.

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