IMPLEMENTION OF SYSTEM FOR PRODUCT DEVELOPMENT USING IOT

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1) INTRODUCTION

The IoT is widely accepted as a novel paradigm that can radically transform the manufacturing industry. Various manufacturing devices can be seamlessly integrated which are equipped with sensing, identification, processing, communication, actuation, and networking capabilities. For complex industrial systems, it is important to ensure a smooth transformation towards the smart industry vision despite of the associated challenges with respect to e.g., transition from the traditional multi-layered architecture to an open structured service-oriented automation system architecture, changes of business models and strategies, legacy system migration to cloud environment, etc. Manufacturing processes can be improved with help of this idea. Improve the quality of the product. Increase the speed of production. Reduce the cost required for manufacturing. Involvement of humans on production line can be minimized.

Keyword: *IoT, Sensor, Cloud*

2) GOALS AND OBJECTIVES

1. Primary goal of using loT in manufacturing is that to get access of any business from anywhere through the Internet connectivity.

2 To build a system that will automatically monitor the applications of manufacturing and generate Alerts and take intelligent Decision using loT and artificial intelligence and to design the system to Take Intelligent Decision and Control Devices.

A. Sofware Requiremens Platform :

 i. Operating System: Windows, Android 4.0
 ii. IDE: Arduino IDE, Android IDE
iii. Programming Language: C, C++, Java iv. Databases: SQLite

B. Hardware requirements:
i. Arduino UNO
ii. P.H. Detector
iii. P.I.R, Color, Force ,Thermal, Temperature and Humidity Sensors
iv. Automatic Watering System
v. Wi-Fi Module
vi. Power Supply
vii. Bread Board
viii. Jumper Wires
ix. SDK Module
 x. GSM Module

3) SYSTEM ARCHITECTURE

Fig. 3.1

4) ALGORITHM

Manufacturing using IoT

Here, we use sensors, hardware and application software to build an automated system for smart manufacturing using IoT.

STEP 1: Testing raw materials scans various parameter using sensors. Transfer values to database compares

standard value and scanned value Approve or reject raw material.

STEP 2: Manufacturing process for making raw materials ready for production manufacturing process sends it for testing .

STEP 3: Testing of product Scan temperature humidity and other parameters of the product using sensor. Compare with standard values Analysis Approve or reject the product Send for packaging

STEP 4: Packaging Package the product.

STEP 5: Package testing: Final packaged product to test using a sensor. Approve or reject it product after verifying it.

5) FUTURE SCOPE
 • Increased Automated Systems.
 • Better Efficiency.
 • Reduced Manpower.
 • Reduced Margin of error.

6) FEATURES

i) Affordable:
This System is Affordable for the small scale manufacturing industries. Because the hardware (Sensors) we are using are very cheap.

ii) Customizable:

As we all know no two Manufacturing are identical, we need to design the position, working and relay of the sensors, it is only possible with this system.

iii) User friendly:

Working with IoT is very easy after the basic training of the system.

iv) Secured System:

Without proper authentication no one can enter into the system.

7) APPLICATIONS

Automation Small manufacturing industries:

Automation in small manufacturing industries rise the leads to the cost effective and less human efforts consuming system through which small scale companies can grow fast and deliver quality product in less time and money

8) CONCLUSIONS

A. Automation is the need of the time, and almost every big title company have included automation in their manufacturing lines.
B. In this competitive environment there is a need of automation in small industries also and it can be done using right knowledge of IoT and manufacturing processes.
C. Hence, we are trying to develop a smart manufacturing system which is beneficial for industrial purposes.

9) REFERENCES

[1] Ashton, Kevin. "That 'internet of things' thing."RFiD Journal 22,no. 7(2009): 97-114

[2] Chui, Michael, Markus Löffler, and Roger Roberts. "The internet of things." McKinsey Quarterly 2, no. 2010 (2010): 19.

 [3] Da Xu, Li, Wu He, and Shancang Li. "Internet of things in industries: A survey." IEEE Transactions on Industrial Informatics 10, no. 4 (2014): 2233-2243.402

[4] Mark Phillips, Marketing Engineering, National Instruments,Australia.
Wiwat Tippachon Department of electrical engineering,Rajamangala University of Technology Lanna Chiangrai, Thailand.
 A.C.Sarma and j.Girao "Identities in The future Internet of Things",Wireless pers.

[5] Z.pang 1.Zheng.J.TIN.S.Kao-Walter,"Design of terminal soltuion for integration of In home health care and services devices towards the Internet of Things"

[6] Fei Tao,"Iot-Based Intelligent Perception and Access of Manufacturing Resources Toward Cloud Manufacturing".