

IMPLEMENTING A SYSTEM FOR PRODUCT DEVELOPMENT USING IOT

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Abstract

The IoT is widely accepted as a novel paradigm that can radically transform the manufacturing industry. It can realize the seamless integration of various manufacturing devices equipped with sensing, identification, processing, communication, actuation, and networking capabilities. The digital transformation across the whole value chain in the industry is aiming at increasing the overall efficiency of production services. 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. The possibility of the task is to improve the assembling procedure. Improve the nature of the item. Increment the speed of creation. Diminish the cost required for assembling. Additionally limit the association of people on creation line.

Keywords: *IoT manufacturing process Arduino, sensors, wifi*

1) Introduction:

In today's world manufacturing of product is a measure task, but production techniques used are orthodox systems. These frameworks required consistent human checking and association. It is preposterous each time the human sensors will identify the mistakes and blames in the item. This will naturally affect the nature of the item. It is likewise diminishes the generation rate and increment the expense of creation. For instance, human sensors cannot identify the ideal nature of the crude material utilized for assembling, there might be some mistake in the material which isn't perceive by the human sensors. This will make the speed of generation slower and increment the expense of creation so sensors assume a significant job to expel such blames so the possibility of the venture is to improve the assembling procedure. Improve the nature of the item. Increment the speed of generation. Lessen the cost required for assembling. Additionally limit the contribution of human on generation line.

2) Literature survey:

Recent examines have added to the advancement in the field of IoT through this paper we have brief thought of undertaking which is to build up the keen assembling process utilizing IoT.

In our writing study we have studied and referred distinctive research papers in regards to the essential idea of IoT, Manufacturing procedure and creation line of the item.

Utilizing IoT in different fields to interface things, services and individuals for wise tasks is pattern now a days in most recent innovation we have accumulated data new advances on Iot. Since this new pattern have given such significance in manufacturing of modern assembling is developing quicker we have chosen to work further on this venture.

3) System Requirements

Platform:

Operating System: Windows 7 and above, Android 4.0 and above.

IDE: Arduino IDE , Android IDE

Programming Languages : Embedded C

Database: SQLite;

Hardware requirements:

Arduino UNO

Moisture detector

P.I.R, color ,thermal temperature and humidity sensors

Automatic warning system

ESP8266 module

Power supply

Bread board

Jumper wires

SD card

4) Methodology:

A: Procedure

Take sensors readings

Store the readings and check with standards

Give results with respect to standard values

Whether to approve the raw material or reject the raw material

Rejected raw material go back to the raw material dealer

Approved raw material goes for further processing

After the product is made and packed, again use sensors to check whether the product is a standard product.

Transfer all the data to machine and phone app

Methods

Quality check :

The raw material will be checked for the quality. By various parameters it will be examined. Taking every point of view in mind the raw material will be checked for example checking the humidity in substances, checking its color or even checking the weight after packaging

Applications of sensors:

Various sensors will be applied in our project. The description of each sensor is described in this general as well. By using these sensors all the quality check will be performed in the raw material.

Storing the data in the database:

For further operation on the data the data needs to be stored first. So this data then will be stored in a database and then will be referred to form the database.

Comparing values in database to the standard values:

The data stored in the database is compared to the standard values and then it is decided whether the raw material should be approved or rejected.

Checking product after manufacturing:

The manufacturing product is then checked using sensors and the data then goes to the database

Comparing this values to the standard values:

Again this values which are stored in the database are checked with the standard values and the product is approved or rejected. If the product is rejected it is re-manufactured. This process continuous till the product is approved and if approved it goes into the market.

Sending data to the application:

Each and every data collected and compared should be shown in the application on the phone. This is done on the cloud platform used by the device. Also the comparison with the different standard values should be shown on the application on the smart phone. The practice of using network of remote servers hosted on the internet to store,manage and process data instead of local server or a personal computer.

Outcomes:

Outcomes of the project are to develop a manufacturing system which enhances the performance of the manufacturing process. This system will also reduce human efforts and minimize the efforts which may be faced by the human.

5) System Architecture:



6) Algorithm:

Manufacturing using IoT:We are using sensor hardware and application software to build an automated system for smart manufacturing or goods using IoT.

Step1: Testing raw material

Scan various parameters using sensors. Transfer values to database compare standard values to scanned values. Approve or reject raw material

Step 2: Manufacturing Process

Making raw material ready for production, manufacturing process send for testing.

Step3: Testing of Product

Scan temperature humidity and other parameters of the product using sensors compare with standard values and analysis sent for packaging.

Step4: Packaging

Package the product.

Step5: Package Testing

Final package product testing using the sensor, approve the product after verifying it.

7) Future Scope:

Increased Automated Systems.

Better Efficiency.

Reduced Manpower.

Reduced Margin of error.

Conclusion:

Thus we have completed a field survey of two industries successfully. Now we are trying to implement a system for product development using IoT which is beneficial for industrial purpose.

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