Dust Collector   Fan   RAV   PLC Timer   Timer

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Application Note	APNT-2#

Embedded Systems: Microprocessors And Microcontrollers

It's Use In Bag House Control Techniques For Cost Cutting

In today's economic climate, industrial suppliers are searching more than ever for ways to increase profitability. How can *Dust Collector Technology* equipments push them closer to their goals ?………..

Save Thousands Of Dollars When You Upgrade Or Buy A New

During this economic recession, most companies are looking, to cut costs that that will bring a sizeable, immediate savings. Repairing and updating a Pulse Jet Cleaning with compressed air system can save thousands. **X'CALIBUR'S** e-Series Multi Function Bag House Controllers with Digital Differential Indicator Controller or pressure switch can quickly checks out compressed air wastage & enhance the bag life significantly thus saving in costs.

The Approach …

An embedded system is a type of computer that can perform a few dedicated tasks. This design is different to the normal computer that is designed to perform a number of operations that are in many cases unrelated to each other. Embedded systems are present in many of the devices that are used today and act as their control units. The main issue with embedded systems is their optimality in the terms of cost, space and power consumption etc. & also there is purposeful focus on increasing the functionality of the device\ appliance \ gadget \ controller

In Definition …

The term embedded system can thus, be used to refer to devices that perform certain specific functions and cannot be used to perform others by loading applications on them.

Distinctive Features Of Embedded Systems …

Here are a few characteristic features of embedded systems:

- Many of the embedded systems have several [hardware](#) restraints as they have to process real time inputs and must also be safe to use. Others may not have some of these constraints and thus, reduction in the cost of the hardware used is possible.
- The term embedded system does not refer to devices that are isolated but rather, they are a part of the device they control or perform some other task in Real Time.
- The software that is used in embedded systems is usually termed as [firmware](#). Or program code\ Flash code. The same is stored in disk drives or in ROMs as an embedded system usually lacks a full-fledged hard disk drive.

Embedded systems many times do not have a user interface as they are designed to perform only a single task. Whereas, some other devices similar to embedded systems such as PLC Touch screens have a complete user-friendly interface.

Simplicity ... & ... Complexity...

The simple embedded systems usually consist of components such as buttons and LED to input the data and to show the output respectively. On the other hand, complex embedded systems have touch screens, large amount of buttons etc. for the purposes of input, output etc. In order to accommodate this large amount of buttons, they are usually placed at the bottom of the graphic screen.

[Off Line Bag House Master Controller](#)

Engineers have successfully made use of the Internet in order to provide individuals with and interface to remote embedded systems. Thus, many users at different locations can use a single system.

Embedded Systems Classifications...

In general, embedded systems can be classified into two types viz. microprocessors and Microcontrollers.

1. Microprocessors usually perform a single or very limited set of tasks. In many cases, a single microprocessor may not be of any use at all.
2. Microcontrollers on the other hand can perform a number of operations and thus, can execute a complete task. They can be considered as all-embracing versions of a microprocessor.

Advantages... In New Era Of Controls...

There are several distinct advantages

1. Smaller PC board sizes
2. Reduction in manufacturing costs
3. Complex [Smart] controls achieved with relative ease Via Algorithms   *[RABH Control panel](#)
4. Properly & clear-cut Human Machine Interface [HMI] can be function specific

5. Quality assurance is further well-defined so Straightforward QAP set ups
6. Easy for Batch / Mass production to meet Market Demand
7. On site Failures are abridged so less down times in process plant & uninterrupted production line working.
8. With Modern Embedded devices High speed Real time front end application possible

Application areas...

Since the early Mid Fifties, Bag House Dust collectors has been used to Collect the dust & to keep environment clean. In the 1980's and 90's, rapid expansion in its demand for Air pollution Control Equipment put pressure on suppliers to reduce costs and increase efficiencies to make it more economically viable. Now with the Microcontrollers in action such savings are existent with improvement in technology performance

Microprocessors/Microcontrollers are used in various different areas of technology. For example, they are present in the cellular phones that we use. They are also used in mp3 players, refrigerators, microwaves, some remote controls, printing devices, GPS receivers etc.

Thus, embedded systems have become indispensable in today's world and daily human activity (as it is today) without them, is practically impossible

* RABH means-- Reverse Air Bag House …..A Dust Collector control Approach

INTRODUCTION:

Vilas Wadekar worked as a chief technical specialist in Bag House Designs & Solids Management with the Advanced Manufacturing of Technology at Various Companies. For last 25 years he is Manufacturing his own _Bag House Accessories & Bulk Handling Products_ in Air Pollution Controls & Solids Handling. Over the years he has acquired the skills of Embedded Control Instrumentation in the same field. He is a B.E. in Mechanical engineering from College of Engineering Pune India and M.Tech. In Production Science & Technology from The Indian Institute Of Technology [IIT] Kharagpur, WB, India.

Product Details at http://www.sxcalibur.com/