Smart big Bazaar using Internet of things

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Abstract - *An inventory control system is a set of hardware and software based tools that automate the process of tracking inventory. The kinds of inventory tracked with an inventory control system can include almost any type of quantifiable good, including food, clothing, books, equipment, and any other item that consumers, retailers, or wholesalers may purchase. Modern inventory control systems are almost exclusively based on barcode technology. Though barcodes were initially developed to automate the process of grocery store checkout, but consumer will pick up the goods for the defined product station, for this station refilling we need manpower who take care while a time period check the station and if the goods station is empty he/his will fill the station while take the goods for the grocery store. If the store employ in not take of the goods station then it will make effect the store management and profit. So Inventory control systems work in real-time using wireless technology to transmit information to a central computer system as transactions occur.*

Key Words: Smart Big Bazzar ,Internet of things,Inventory Control system, ARM,Internet,Real-time using wireless Technology.

1.INTRODUCTION

The Internet of Things is not a new concept. The term was coined in the late1990s, and many of the essential components like semiconductors and wireless networks have existed for decades. The Internet of Things is made up of hardware and software technologies. The hardware consists of the connected devices which range from simple sensors to smartphones and wearable devices – and the networks that link them, such as 4G Long-Term Evolution, Wi-Fi and Bluetooth. Software components include data storage platforms and analytics programmes that present information to users. However, it is when these components are combined to provide services that real value is created for businesses, consumers and governments. And new challenges will surely emerge, in particular ethics what is the place of humans in a 'new society' where 'thinking*."*
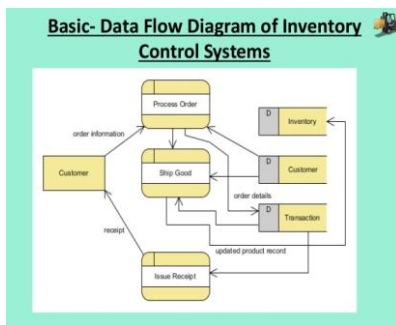
1.Proposed Methodology
1.1 Internet of Things
The Internet of Things represents a vision in which the Internet extends into the real world embracing everyday objects. Physical items are no longer disconnected from the virtual world, but can be controlled remotely and can act as physical access points to Internet services. An Internet of Things makes computing truly ubiquitous – a concept initially put forward by Mark Weiser in the early 1990s . This development is opening up huge opportunities for both the economy and individuals. The Internet of Things vision is grounded in the belief that the steady advances in microelectronics, communications and information technology we have witnessed in recent years will continue into the foreseeable future. In fact – due to their diminishing size, constantly falling price and declining energy consumption – processors, communications modules and other electronic components are being increasingly integrated into everyday objects today.

1.2 Inventory Control System

Inventory Control System is based on Hardware and Software based tools that automate process on tracking System. Inventory Control System provide tracking system without manpower. An inventory control system is a system the encompasses all aspects of managing a company's inventories; purchasing, shipping, receiving, tracking, warehousing and storage, turnover, and reordering. In different firms the activities associated with each of these areas may not be strictly contained within separate subsystems, but these functions must be performed in sequence in order to have a well-run inventory control system.

Fig2.1: ARM Cortex M4 Processor

2. SYSTEM DESCRIPTION

2.1 ARM CORTEX M4:

ARM Cortex is a group of 32-bit RISC ARM processor cores. The cores are intended for microcontroller use, and consist of the Cortex-M0, M0+, M1, M3, M4, and M7.ARM Cortex is a microcontroller (high performance embedded processor with DSP instruction).It reads the data from inventory control system and process the data received from sensor unit. The processor is highly configurable enabling a wide range of implementation from those requiring a floating point operation ,memory protection & powerful trace technology to cost sensitive devices requiring minimal area. The combination of high-efficiency signal processing functionality with the low-power, low cost and ease-of-use benefits of the Cortex-M family of processors is designed to satisfy the emerging category of flexible solutions specifically targeting the motor control, automotive, power management, embedded audio and industrial automation markets.

Why Cortex-M4:

1.Designed for efficient embedded system.

2.Very easy to use, most applications can be programmed completely in C or any high level language

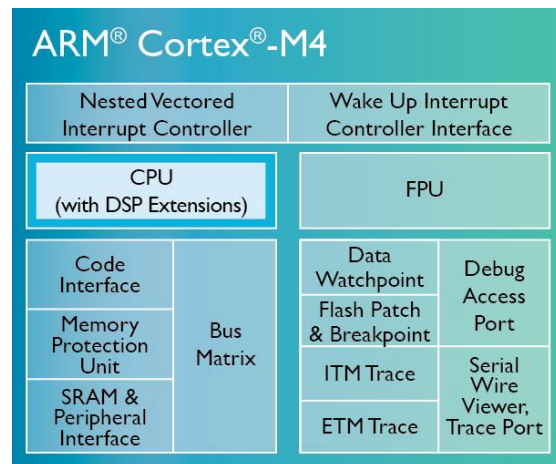3.Scalable architecture supporting ultra-low power sensors to high performance controllers.

2.2 Rasberry Pi:

Raspberry Pi is as small as the size of a chip; affordable computer that you can use to learn programming through fun, practical projects. it can certainly minimize an enterprise's budget. It is used in first generation Raspberry Pi is somewhat equivalent to the chip used in older smartphones (such as iPhone /3G / 3GS). The Raspberry Pi is based on the Broadcom BCM2835 system on a chip (SoC), which includes an 700 MHz ARM1176JZF-S processor.

The Raspberry Pi hardware has evolved through several versions that feature variations in memory capacity, and peripheral device support.

Fig 2.2 : Hardware unit of Rasbery Pi

3.1 IR sensor:

For the Smart big Bazzar , It can be used. It gives to know which type of goods is empty. It's providing information about quantifiable goods in grocery. Hence Infrared (IR) sensor is used for Inventory control System. Infrared sensor is an electronic sensor that measures infrared (IR) light radiating from objects in its field of view. All objects with a temperature above absolute zero emit heat energy in the

form of radiation. Usually this radiation is invisible to the human eye because it radiates at infrared wavelengths, but it can be detected by electronic devices designed for such a purpose.
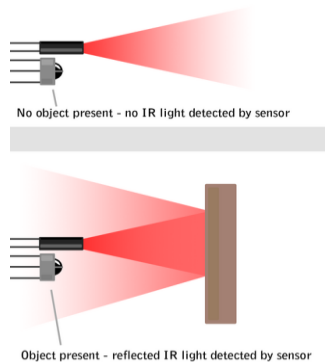

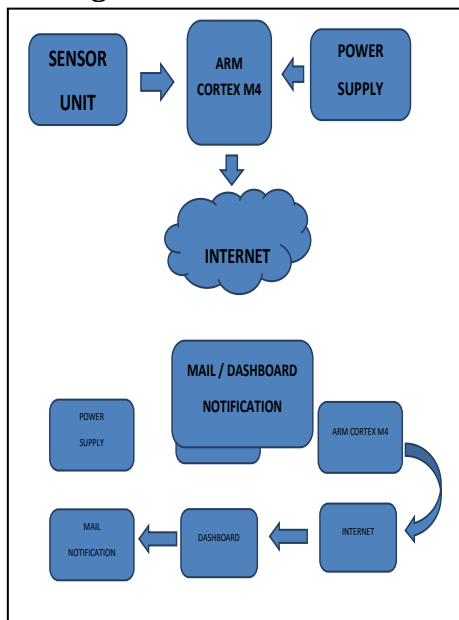**Fig -3.1**: IR Sensor

4. Block Diagram

Fig:4 Block Diagram

5.Graphic Processing Unit

A graphics processing unit (**GPU**), also occasionally called visual processing unit (VPU), is a specialized electronic circuit designed to rapidly manipulate and alter memory to accelerate the creation of images in a frame buffer intended for output to a display.
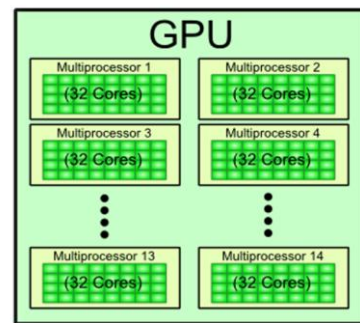

Fig 5:GPU

6. CONCLUSIONS

 The implementation of Smart Big Bazzar using IoT, IR sensor, microcontroller and GPU . This system assures and track the quantifiable goods from inventory control system by using real –time using wireless technology *to transmit information to a central computer system as transactions occur*. and got notification in Mail/Dashboard . This system also helps to reduce the manpower as well as money saving to extra care for goods that type of goods is empty in grocery. These Smart Big Bazaar model can be applied to any of the smart cities around the world like a wall mart.

REFERENCES

[1]. Adelmann, R., Langheinrich, M., Floerkemeier, C.: A Toolkit for Bar Code Recognition and Resolving on Camera Phones – Jump-Starting the Internet of Things. Proc. Work shop Mobile and Embedded Interactive Systems. In: Hochberger, C., Liskowsky, R. (eds.)

Informatik 2006 – GI Lecture Notes in Informatics (LNI) 94, pp. 366–373 (2006)

[2]. Ashton, K.: That 'Internet of Things' Thing. RFID Journal, www.rfidjournal.com/article/ print/4986 (2009)

[3].Coroama, V.: The Smart Tachograph – Individual Accounting of Traffic Costs and its Implications. In: Fishkin, K.P., Schiele, B., Nixon, P., Quigley, A.J. (eds.) Proc. Pervasive 2006, LNCS 3968, Springer, pp. 135–152 (2006)

[4]. Duquennoy, S., Grimaud, G., Vandewalle, J.-J.: Smews: Smart and Mobile Embedded Web Server. Proc. Int. Conf. on Complex, Intelligent and Software Intensive Systems, pp. 571–576 (2009)

 [5]. Fleisch, E., Mattern, F.: (eds.) Das Internet der Dinge. Springer (2005)