A paper of analysis on General Purpose Controller Board Development

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***ABSTRACT:** This paper exemplifies the design and growth of a controller board with different peripherals for another applications Collection. It is a lightweight mechanism that can be used for the input is regulated, displayed and manipulated. A general in general basically, the objective controller board is a controller board which it makes its use in different applications, eventually pointing to be compatible with other devices, Availability of the different peripherals minimize the complexity of the brand and minimizes expenditures. A temperature sensor is used to apply this to the temperature is calculated and the quantity is then measured. This is a real-time control device that is measured and shown. This control board is designed to allow the microcontroller and devices to interact with each other via serial interaction .It is an electronic platform based on easy to use hardware and software .The task can be performed by running a set of instruction which is programmed in a micro-controller.*

***KEY WORDS:** Controller Board, Microcontroller, Analog Sensing, Communication, Display, Sensor*

INTRODUCTION

The traditional interconnected ecosystems of design for comparatively, microcontrollers, FPGA, or DSP boards are it is challenging and takes significant learning time. Scientific research in the area of digital and digital research is also applications of analogue control have greatly affected heights in order to have substantial uncertainty in the initial research practical as well as theoretical aspects. The controller comes up having all necessary set of peripheral drivers guaranteeing long term hardware and software compatibility. The availability of efficient drivers for the considered hardware platforms frees the users from the burden of low levelled programming. At the same time, the high-level programming approach facilitates software reutilization, allowing the laboratory know-how to steadily grow along time. Lastly when both are integrated properly, a well-built setup for Real time (RT) simulations for oriented application can be carried out[1].This will allow the developer to continue with the controller's implementation. Section II of this Division the suggested block diagram is elaborated, and Section III includes survey, contrast, part collection, segment IV consists of specification blocks for each peripheral and each peripheral.Section V, the corresponding diagram, consists of generating Gerber Layout Files, Section VI contains Hardware the programmer is determined by implementation and Section VII Information for implementation, testing and development. As a consequence, Production of applications that are non-trivial, for demonstration for purposes of scientific study as well as it takes tremendous effort and a reasonably long period of time. All This also discourages students and preventsthem from doing so[2].Taking up the challenge completely.Interest in the digital sectorcomputing systems for the manufacture of controllers and real-time simulation systems have increased dramatically in terms of the past few years. This is also attributable to the criteria of a smart grid. Applications for simulating a complex system of control. This, this, the aim of the section is to discuss in greater depth the different hardware characteristics of the controller. Each portion is in terms of its role and capabilities, represented[3].

Hardware Toolset:

PIC Controller: The controller is controlled by dsPIC3EP device, configured as an I2C bus slave. The programming of PIC is done using MPLAB software released by Microchip Technology Incorporated. The dspic family has many features which are intended to maximize application such as flexibility and reliability and also the cost using different external components. The features include a timer for watchdogs, Flexible setup, code guard and safety of code, JTAG Programming of boundary scans, in circuit Serial also

Programming (ICSP) and Reset brown out (BOR). The remap able inputs functionality is simultaneously mapped and with the same pin, too. If it is necessary to perform some function on the allowed pin can be remapped[4].
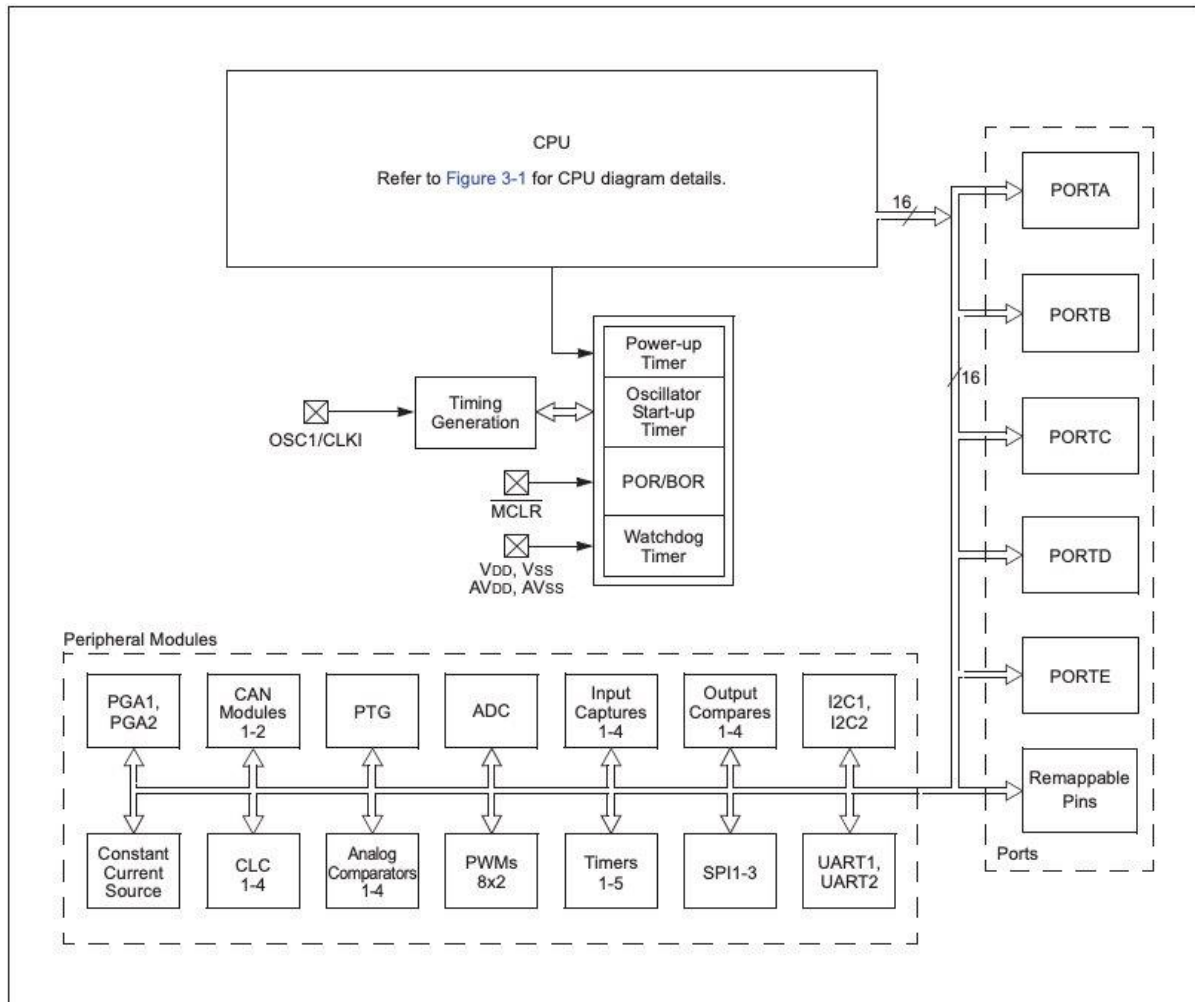

Fig 1: PIC Family

Energy Metering IC:

The ADE7754 is a high-precision electrical active power system measurement ICs with a pulse for three-phase applications from production[5]. This expected performance is to be used for Purposes for calibration are considered. ADE7754 is made up of ADCs, reference circuitry and all the handling of signals which is required for active power and energy to be carried out measuring. An ADE7754 provides Active Energy, RMS values, temperature measurement and Apparent Energy information via a serial interface[6].

Using CT as Current Transducer:

By using a secondary voltage, the current is converted into voltage. Resistance to the load through the secondary winding outputs. It is necessary to take due care when using a current Transformer as the transducer of the presentIf the registry of burdens is not A large voltage at the secondary voltage will appear related, exits. Outputs. This will result in the risk of shock and a dangerous electronic component. Up to a maximum analogue input the current channel range is set at 0.5V. The Benefit of ADE7754 should be set to 1 for the current channel[7].

Analog Inputs:

All analog input signals are filtered using the on-board antialiasing filters before being presented to the analog input of ADE7754. The user can easily make changes according to these components; however, this is not recommended unless the user is familiar with sigma-delta converters and also the criteria used for selection of the component values for the analog input filters[4].

REVIEW OF LITERATURE

There have been many paper published in the field of micro controller and microprocessors among all those paper a paper titled "A Review Paper On DEVELOPMENT OF GENERAL PURPOSE CONTROLLER BOARD by Ms. Aditi Girish Vaidya1, Mr. Lakshmana Korra2 discussed about the hardware toolset, PIC controller, analog input, energy metering IC, Current sense input, voltage sense input, discussed about the CT as current transducer also give calculation of voltage sensing, temperature sensing and current sensing[8].

CONCLUSION

The consequent growth of creative new idea and a plethora of features. Multiple parameters that can be used the updated version enables an optimized adaptation to the various with modules. The user-friendly characteristics of this module are menu-based operation of guided displays in plain text. Theirs is the features make for an intuitive operating mode.The equipment thus used applies to industrial applications. Based on the value taken from the IC ADE7754 in real time. Several Prefect mechanism guidance helps to maintain throughput and offers predicated implementation. The bulk of directions conduct an efficient rate of execution in a single cycle, with the Guideline exemption. A pin dependent on the value of VIH and VIN with regard to the pin, it will serve as a source or sink for current control Controller.

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