

Design and Implementing Lab Attendance System Using RFID

L. B. S. Sasank, K. Sravani, D. Savithri, Suman Maloji

Abstract: Present days All educational institutions have certain criteria for students regarding their attendance in laboratories and it takes too long because of huge number of understudies, this makes a ton of issue because of absence of time and asset, this issue can be fathomed by utilizing RFID. This proposed framework will record and deal with the understudy participation naturally. Lab Attendance System (LAS) is effectively encouraged the understudies' participation and research center administration on assessment of understudy execution for specific test. It enlightens us concerning the understudy has achieved the college or not consistently. In each research center, a RFID framework is introduced through which we will distinguish the area of the understudy and staff. Thus, this undertaking center around the understudy participation at college's research facility utilizing uninvolved RFID gadgets that inserted in the understudy card, and incorporate the gadgets with online electronic framework.

Keywords: Arduino nano, lab attendance, RFID.

I. INTRODUCTION

Computerized checking frameworks makes simple technique to distinguish thing, following, observing on security regards. In spots where there are clusters of things gotten to by various customers, the tendency of setback is high a direct result of deficiency in things watching. The crucial bring up to work out a nonexclusive procedure of checking things set up with a couple of rooms. This paper portrays about the online Laboratory Attendance System (LAS) that utilization RFID and Arduino development. LAS execution includes gear framework. To robotize the procedure, Radio Frequency Identification (RFID) is perceived as a boss among the most normal and reasonable interminably execution according to the nature where the greater part of the structures are made motorized and RFID-based watching framework has been arranged and made to deal with the issue related with the treatment of research focus examinations. The epic ID of the understudy card and print the information of the understudy on the LCD leading body of the structure contraptions is executed using RFID devices with Arduino UNO microcontroller is recognized.

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The present condition is checked whether the understudy is gone into the lab or not, it is troublesome for the lab help to check whether all of the understudies have entered or not. The understudy interest is having a unique ID number from the understudy card, which utilizes the RFID advancement. RFID is a remote modified distinctive verification that is getting thought and is considered by some to ascend as one of the unavoidable preparing developments in history As the advancement turns into all around rapidly, RFID has gotten broad in general thought and by and large used in checking and following running from human ID to thing unmistakable evidence. This proposed system is answer for the above notice issue. The understudy cooperation is having an unprecedented ID number from the understudy card, which utilizes the RFID development. By then the information is saved from the database. This investment record is therefore synchronous with the lab modules and appraisal for the looking into system from the lab educator.

II. LITERATURE SURVEY

A Real time keypad based participation framework with the capacity to collet information from EEPROM to a Raspberry Pi server from various remote sensor hub is grown beforehand. A matric card and standardized identification scanner based remote participation framework is proposed by sime analyst[1]. Movement sensor and RFID based participation framework with Web ASP.net application is appeared some exploration. The creators endeavored to tackle issues of dependability, security and protection in E-travel papers by verifying holder web based utilizing Global System of Mobile Communications(GSM) arrange. The GSM organize is the primary interface between recognizable proof focus and the e-international ID peruser[2]. The correspondence information is ensured among server and e-international ID peruser by utilizing AES to encode information for assurance while exchanging through GSM organize. Creator in looked into the momentum examine utilization of RFID to various zones with accentuation on application for inventory network the executives and built up an ordered structure to characterize writing which empowers quick and simple substance investigation to help distinguish territories for future research.[3] Creators in audited the utilization of RFID in an incorporated circuit(IC) bundling house to determine stock exchange issues[4].

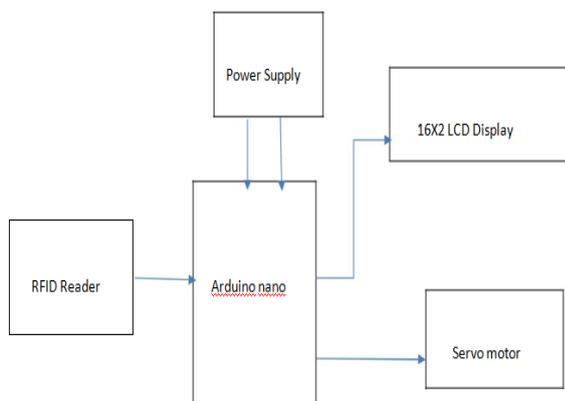
III. INTERNET OF THINGS

A dynamic generally speaking affiliation foundation with self-organizing limits subject to standard and interoperable symmetricalness conventions where physical and virtual things have characters, physical properties, and virtual identities and utilize.

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Sharp interfaces, and are dependably arranged into the data sort out. The Internet of Things (IoT) is delineated by ITU and IERC as a dynamic for the most part sort out establishment with self-structure limits depletion on standard furthermore, interoperable correspondence traditions where physical and virtual "Proportionate words/Hyponyms (Ordered by Estimated Frequency) of thing " have characters, physical character and virtual personalities, use careful interfaces and are reliably organized into the information facilitate. Over the scope of the latest twelvemonth, IoT has moved from being a Synonyms/Hyponyms (Ordered by Estimated Frequency) of thing cut - edge vision - with sometimes a particular segment of development - to a creating fundamental supply world. Telecom official consider that Machine-to-Machine (M2M) and the Inter-net of Things are changing into an inside business focus, uncovering fundamental headway in the proportion of related solicitation in their structure. Gadget makes for instance concerning wearable comfort imagine a full new business bundle towards an undeniably wide assignment of the IoT. These geographic campaign results are beginning at now proceeding into advancement, and an improvement of territories is open, which could kindly be abused and redesigned by the market. In spite of the way that increasingly significant players in a few uses program zones still don't see the voltage, different them spring mindful situation or even breath life into the walk around conveying new terminal figure for the IoT and including additional parts to it. In like way end client in the private and business space have nowadays gotten an indispensable point of confinement in regulating careful devices and built applications. As the Internet of Things keeps on progress, advance potential is overviewed by a mix with related movement methods and insights for instance, Cloud figuring, Hereafter Internet, Big Data, Robotics and Semantic credit. The 1 feeling of acknowledge is doubtlessly not new everything considered yet rather, as these insights spread in a couple of areas (centered and advantage models, virtualization, interoperability , computerization), veritable pioneer see constantly the bit of correspondingly instead of guarding explicit space.

IV. PROPOSED SCHEME



V. HARDWARE DISCRPTION

Arduino Nano:

It is a Microcontroller board created by Arduino.cc and dependent on Atmega328p/Atmega168.

Arduino sheets are broadly utilized in mechanical autonomy, installed frameworks, and electronic undertakings where mechanization is a basic piece of the framework. These sheets were presented for the understudies and individuals who accompany no specialized foundation.

Arduino Nano is a little, perfect, adaptable and breadboard amicable Microcontroller board, created by Arduino.cc in Italy, in view of ATmega328p (Arduino Nano V3.x)/Atmega168 (Arduino Nano V3.x).

It accompanies the very same usefulness as in Arduino UNO yet very in little size. It accompanies a working voltage of 5V, notwithstanding, the info voltage can fluctuate from 7 to 12V. Arduino Nano Pinout contains 14 advanced pins, 8 simple Pins, 2 Reset Pins and 6 Power Pins.

Every one of these Digital and Analog Pins are allotted with numerous capacities yet their principle work is to be arranged as info or output. They are gone about as information pins when they are interfaced with sensors, yet on the off chance that you are driving some heap, at that point use them as output. Functions like pinMode() and digitalWrite() are utilized to control the activities of computerized pins while analogRead() is utilized to control simple pins. The simple pins accompany an absolute goals of 10bits which measure the incentive from zero to 5V.

Arduino Nano goes with a valuable stone oscillator of repeat 16 MHz. It is used to make a clock of accurate repeat using relentless voltage. There is one repression using Arduino Nano for instance it doesn't go with DC control jack, infers you can not supply outside power source through a battery. This board doesn't use standard USB for relationship with a PC, rather, it goes with Mini USB support. Tiny size and breadboard neighbourly nature settle on this device an ideal choice for most by far of the applications where a size of the electronic portions are of extraordinary concern. Flash memory is 16KB or 32KB that all depends upon the Atmega board i.e Atmega168 goes with 16KB of glint memory while Atmega328 goes with a burst memory of 32KB.

Streak memory is used for securing code. The 2KB of memory out of total gleam memory is used for a boot loader.



Fig.2 ARDUINIO NANO

Servo Motor:

A servomotor is a transforming actuator or direct actuator that mulls over definite control of exact or straight position, speed and acceleration.[1] It involves a fitting motor coupled to a sensor for position input. It similarly requires a for the most part present day controller, routinely a gave module organized unequivocally for use with servomotors. It are not a specific class of motor notwithstanding the way that the term servomotor is consistently used to imply a motor suitable for use in a shut circle control system.



Fig.3 Servo Motor

A servomotor is a shut loop servo mechanism that utilizes position input to control its movement and last position. The contribution to its control is a flag (either simple or computerized) speaking to the position directed for the yield shaft.

The engine is combined with some kind of encoder to give position and speed input. In the least complex case, just the position is estimated. The deliberate position of the yield is contrasted with the order position, the outside contribution to the controller. In the event that the yield position varies from that required, a blunder flag is created which at that point makes the engine pivot in either heading, as expected to convey the yield shaft to the suitable position. As the positions approach, the mistake flag decreases to zero and the engine stops. The most straightforward servomotors use position-just detecting by means of a potentiometer and blast control of their engine; the engine dependably turns at full speed (or is ceased). This sort of servomotor isn't generally utilized in modern movement control, yet it frames the premise of the straightforward and shabby servos utilized for radio-controlled models. Progressively refined servomotors utilize optical turning encoders to gauge the speed of the yield shaft[2] and a variable-speed drive to control the engine speed.[3] Both of these upgrades, normally in blend with a PID control calculation, permit the servomotor to be conveyed to its instructed position all the more rapidly and all the more definitely, with less overshooting.[4]

16x2 LCD Display: LCD (Liquid Crystal Display) screen is an electronic display module and find a wide range of applications. A 16x2 LCD display is very basic module and is very commonly used in various devices and circuits. These modules are preferred over seven segments and other multi segment LEDs.



Fig no:4 lcd dispaly

RFID Tags:

A radio-recurrence recognizable proof framework utilizes labels, or names connected to the items to be distinguished. Two-way radio transmitter-recipients called investigative specialists or perusers send a sign al to the tag and read its reaction. RFID labels can be either uninvolved, dynamic or battery-helped detached.



Fig no:5 RFID Tags

RFID Reader:

A radio repeat unmistakable confirmation peruser (RFID peruser) is a contraption used to amass information from a RFID tag, which is used to pursue solitary things. Radio waves are used to trade data from the tag to a peruser.

RFID is an advancement practically identical on a basic level to scanner labels. In any case, the RFID tag shouldn't be sifted explicitly, nor does it require noticeable pathway to a peruser. The RFID mark it must be inside the extent of a RFID peruser, which ranges from 3 to 300 feet, to be examined. RFID advancement empowers a couple of things to be promptly separated and enables speedy separating evidence of a particular thing, despite when it is enveloped by a couple of various things.



Fig No:6 RFID Reader

VI. EXPERIMENTAL RESULTS



Fig.7 OUTPUT 1(Door Closed)

In the model we are going to provide attendance to the undergraduates with substantial RFID cards. The entryway will open when the card is put or staff gives permission and the entryway will naturally close.



Fig.8 OUTPUT 2(Door Open)

VII. RESULTS

This area portrayed the framework testing on RFID gadgets and the online LAS framework. Framework testing assumes a critical job in the product and equipment advancement

process. The testing stage directed in a few different ways, for example, distinguishing the interesting ID in the undergraduate card, break down the framework joining among equipment and programming, following the remarkable ID of undergraduate card in framework database and client verification at the login page of the undergraduate and staff entry.

Hardware Testing Result

For equipment test, the strategies begin by distinguishing the RFID framework gadgets for the remarkable ID in undergraduate card. Figure 7 demonstrates the equipment model and the RFID card utilized in the framework. To recognize the one of a kind ID in this undergraduate card, programming called HyperTerminal has been utilized [2]. At the point when the HyperTerminal demonstrates the exceptional ID, typically speak to the equipment configuration does not have any issue in circuit association and sequential correspondence. Figure 8 demonstrates the one of a kind ID recognized from the undergraduate card. Next, the equipment testing continues by following the one of a kind ID from the undergraduate card to coordinate the information in the framework database. At the right off the bat association between the RFID card to the equipment model, the framework LCD showed a message as "Participation System".

Then, when the unique ID in student card is detected and successfully matched the data in the system database, student ID number and a message "Attend" are displayed on the LCD panel. An "Attended" message can be displayed for the double touch of the student card on the hardware prototype.

VIII. CONCLUSION

Essentially, electronic Laboratory Attendance System (LAS) is a venture that improves the present participation framework in college particularly in research center. The framework encourages the staff in simpler approaches to play out the undergraduate's participation assessment, evaluating procedure and conveyances of lab records, as it tends to be done on the web. Moreover, this RFID-Arduino approach framework helps the college the board in a few perspectives, for example, decrease cost and spare vitality and time for human endeavors and offices. It can urge the network to utilize generally the data and correspondence innovation (ICT) in every day human exercises. This RFID-Arduino approach can be further research and executes in the region of remote transmitter and recipients of framework joining..

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