# POLICE ASSISTANT DEVICE - CLOUD DATABASE FOR CRIMINAL RECORDS

Dhishanth T D Eee Department Panimalar Engineering College Chennai ,India

**Dharshan R** Eee Department Panimalar Engineering College

Chennai ,India

**Gowtham N** Eee Department Panimalar Engineering College Chennai ,India

Derirck Albino L Eee Department Panimalar Engineering College Chennai ,India

S.Srinivasan Associate Professor Eee Department Panimalar Engineering College Chennai ,India

Abstarct -- in iot applications, Database security and safety is one of the important aspects in the area of networks system. The crime related to criminal actions and alert systems has been a tremendous rise in every day. This generates a crucial need for an effective criminal record system. In this project, a compact, efficient system is studied, designed and explored. An integrated UI system, which is to monitors criminal's record and crimes related to them with conditions and the right authentication using fingerprint sensor. In this project, we provide a trustworthy and solid Criminal Record System (CRS) design with elements boosting traffic signal security. In addition to the recognition system, our proposed recording system also includes a number of additional features. Internet of Things technology is one of the key aspects enabled by this system. The system is kept redundant to provide reliability even in the worst- case scenario, however due to budgetary restrictions, a trade-off between redundancy and cost was required. This method is made to work with practically every location that provides crime assistance. Additional to this we have also implied the concept of powering a vehicle if only the person is not drunk. Alcohol presence is continuously monitored using sensors and whenever alcohol detected, the vehicle engine refuse to start, to avoid accidents.

#### I. INTRODUCTION

Police provides safety to citizens. It always remains steady for arresting any criminal who is a threat for the

safety of society. After registering the FIR from any citizen, police starts its work and on that basis it arrests the criminals if proofs are found against them. Once the criminals are arrested, police starts investigation from them. After getting all the proofs against the criminal, it is the duty of the police to present all the proofs honestly to the court so that the right man can get right punishment.

The true and right information provided by the people to police helps a lot in arresting the criminals who try to spoil the peaceful environment of society. Along with low salary scale, facilities of modern technology such as computerized system of keeping records are not provided to police department which causes low efficiency. As it is the age of computers and all the organizations today use computers to maintain their records, so this facility should also be given to police department in order to increase their efficiency and to save their time.

In our Project we are going to implement a CRMS (Criminal Record Management System). This is a database system in which police will keep the record of criminals who have been arrested, to be arrested or escaped. This will help the police department to manage their records easily. In police system when an incident occurs, a petitioner reports an FIR (First Information Report). Police starts investigation according to law on this FIR. An investigation officer supervises the investigation process. The main concerning people in the whole process are petitioner (The person who files an FIR), Victim, Accused/Criminal, investigation officer. 10

# II. EXISTING SYSTEM.

The existing system that is being used by police department pertaining to the information of the prisoners, stores the name of the prisoners, information of the crime, date of FIR, background of the criminal and duration of the prison. However, once the period comes to an end, and the individual is released, it becomes difficult for the personnel serving the police forces to keep a track of the date and time of the release of the particular offender. Since the information of the release date of the offender is not present with each and every personnel, they are not notified on time, leading to chaos.

#### III. PROPOSED SYSTEM

The aim of the proposed system is to cut through the chaos and workload, by innovating the current system. The proposed system notifies each and every personnel with the application on his android phone, about the release of an offender, including the other details. It eliminates the existing issue where the department of police of different area of jurisdiction remains unaware of the release of the criminal and his/her extra details, by creating a notification every time there is a sight of a criminal. This approach can thereby reduce the effort of the police and save their time, which could possibly be used in a productive manner

3.3 BLOCK DIAGRAM

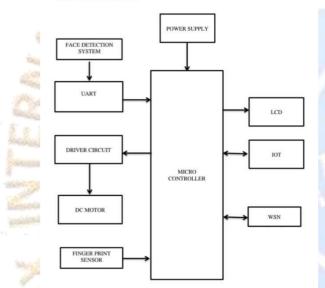


fig:1 Block Diagram of Proposed System

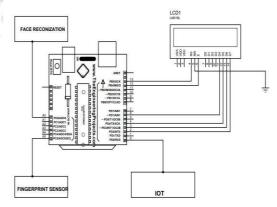


fig :2 Circuit Diagram of Proposed System

#### Block Diagram Description

- Initially power supply comes from ac to dc adapter (230V ac) converted to 12V dc to the ESP32 Microcontroller.
- IN2596 Buck regulator step-downs 12V dc to 5V for UART and 5V for fingerprint sensor.
- For data transmission and API calling we use the WSN hardware module, so that we use the mobile phone network to connect with the microcontroller.
- If the person is detected to have consumed alcohol neither wearing a seat belt nor helmet
- If the person is to be suspected as a violator, the face of the person is recognized using the face recognition IOT system. The crime is uploaded in the database.
- After recording the face and data related to the violator, the user can access whenever he/she wants using the fingerprint sensors.
- The data is also stored in the cloud network or in local backup server used by the police servers.
- These data contain the criminal violation, type of violation, suspect's personal information, date and time of crime occurred.
- These database are to be maintained in the cloud server provided by the police network and it can also be impenetrable.Circuit Diagram of Proposed System

# HARDWARE COMPONENTS

- MICROCONTROLLER
- FINGER PRINT SENSOR
- UART
- DRIVER CIRCUIT
- DC MOTOR
- GAS SENSOR
- LCD DISPLAY
- IR SENSOR
- POWER SUPPLY
- WSN
- SOFTWARE COMPONENTS:
- EMBEDDED C
- ARDUINO IDE
- PYTHON IDE

#### IV. ESP32 MICROCONTROLLER

you can make several projects either as a hobby or even commercial. As technology advanced, new project ideas and implementations came into play and one particular concept is the Internet of Things or IoT. It is a connected platform, where several "things" or devices are connected over internet for exchange of information. In DIY community, the IOT projects are mainly focused on Home Automation and Smart Home applications but commercial and industrial IoT projects have far complex implementations like Machine Learning, Artificial Intelligence, Wireless Sensor Networks etc. The important thing in this brief intro is whether it is a small DIY project by a hobbyist or a complex industrial project, any IoT project must have connectivity to Internet. This is where the likes of ESP8266 and ESP32 come into picture. If you want to add Wi-Fi connectivity to your projects, then ESP8266 is a great option. But if you want build a complete system with Wi-Fi connectivity, Bluetooth connectivity, high resolution ADCs, DAC, Serial Connectivity and many other features, then ESP32 is the ultimate choice

# V. FINGERPRINT READER WITH BOARD

SM-621 is RS232 /UART fingerprint module scanner for the demand of access control system, door lock, T&A and safety box OEM POS Consisting of high function DSP, large capacity FLASH and color CMOS, etc, SM621 optical fingerprint module can conduct fingerprint enrollment, image processing, templates storage, fingerprint matching and fingerprint searching. This Optical biometric fingerprint reader is with great features and can be embedded into a variety of end products, such as: access control, attendance, safety deposit box, car door locks. PRODUCT DESCRIPTION R305 fingerprint module is fingerprint sensor with TTL UART interface for direct connections to microcontroller UART or to PC through MAX232 / USBSerial adapter. The user can store the fingerprint data in the module and can configure it in 1:1 or 1: N mode for identifying the person. The FP module can directly interface with 3v3 or 5v Microcontroller. A level converter (like MAX232) is required for interfacing with PC serial port.

# VI. DC MOTOR

The relationship between torque vs speed and current is linear as shown left; as the load on a motor increases, Speed will decrease. The graph pictured 26 here represents the characteristics of a typical motor. As long as the motor is used in the area of high efficiency (as represented by the shaded area) long life and good performance can be expected. However, using the motor outside this range will result in high temperature rises and deterioration of motor parts. A motor's basic rating point is slightly lower than its maximum efficiency point. Load torque can be determined by measuring the current drawn when the motor is attached to a machine whose actual load value is known.Geared dc motors can be defined as an extension of dc motors. A geared DC Motor has a gear assembly attached to the motor. The speed of motor is counted in terms of rotations of the shaft per minute and is termed as RPM .The gear assembly helps in increasing the torque and reducing the speed. Using the correct combination of gears in a gear motor, its speed can be reduced to any desirable figure. This concept where gears reduce the speed of the vehicle but increase its torque is known as gear reduction. A DC motor can be used at a voltage lower than the rated voltage. But, below 1000 rpm, the speed becomes unstable, and the motor will not run smoothly.

# VII. IOT

The Internet of things (IoT) is the network of everyday objects — physical things embedded with electronics, software, sensors, and connectivity enabling data exchange. Basically, a little networked computer is attached to a thing, allowing information exchange to and from that thing. Be it lightbulbs, toasters, refrigerators, flower pots, watches, fans, planes, trains, automobiles, or anything else around you, a little networked computer can be combined with it to accept input (especially object control) or to gather and generate informational output (typically object status or other sensory data). This means computers will be permeating everything around us — ubiquitous embedded computing devices, uniquely identifiable, interconnected across the Internet. Because of low-cost, networkable microcontroller modules, the Internet of things is really starting to take off.

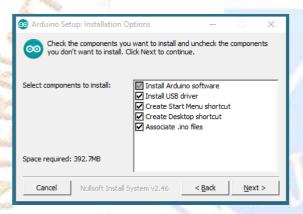
# VIII. WEB SERVER

29 Espresso's ESP32 delivers highly integrated Wi-Fi SoC solution to meet users' continuous demands for efficient power usage, compact design and reliable performance in the Internet of Things industry. With the complete and self-contained Wi-Fi networking capabilities, ESP32 can perform either as a standalone application or as the slave to a host MCU. When ESP32 hosts the application, it promptly boots up from the flash. The integrated high speed cache helps to increase the system performance and optimize the system memory. Also, ESP32 can be applied to any microcontroller design as a Wi-Fi adaptor through SPI / SDIO or I2C / UART interfaces. ESP32 integrates antenna switches, RF balun, power amplifier, low noise receive amplifier, filters and power management modules. The compact design minimizes the PCB size and requires minimal external circuitries. Besides the Wi-Fi functionalities, ESP32 also integrates an enhanced version of Tensilica's L106

Diamond series 32-bit processor and on-chip SRAM. It can be interfaced with external sensors and other devices through the GPIOs. Software Development Kit (SDK) provides sample codes for various applications. Espressif Systems' Smart Connectivity Platform (ESCP) enables sophisticated features including fast switch between sleep and wakeup mode for energyefficient purpose, adaptive radio biasing for lowpower operation, advance signal processing, spur cancellation and radio coexistence mechanisms for common cellular, Bluetooth, DDR, LVDS, LCD interference mitigation.

#### IX. ARDUINOSOFTWARE(IDE)

Get the latest version from the download page. You can choose between the Installer (.exe) and the Zip packages. We suggest you use the first one that installs directly everything you need to use the Arduino Software (IDE), including the drivers. With the Zip package you need to install the drivers manually. The Zip file is also useful if you want to create a portable installation. When the download finishes, proceed with the installation and please allow the driver installation process when you get a warning from the operating system.



The process will extract and install all the required files to execute properly the Arduino Software (IDE)

#### **Technical Details**

The Arduino Boot loader sets the "erase Address" to zero every time the boot loader is called. ROBOTC called the "Load Address" command to set the address in which we want to write/verify when downloading program. When writing a page of memory to the arduino, the Arduino boot loader will erase the existing page and

write a whole new page. In the scenario of downloading firmware, everything is great because the Erase Address and the Loaded Address both start at zero.

In the scenario of writing a user program, we start writing at memory location 0x7000, but the Boot loader erases information starting at location zero because the "Load Address" command doesn't update where to erase. Our modification is to set both the Load Address and the Erase Address so the activity of writing a user program doesn't cause the firmware to be accidentally erased.

The power pins are as follows:

• VIN. The input voltage to the Arduino board when it's using an external 46

power source (as opposed to 5 volts from the USB connection or other

regulated power source). You can supply voltage through this pin, or, if

supplying voltage via the power jack, access it through this pin.

• **5V.** The regulated power supply used to power the microcontroller and other

components on the board. This can come either from VIN via a non-board

regulator, or be supplied by USB or another regulated 5V supply.

• **3V3.**A3.3voltsupplygeneratedbytheonboardregulator.

Maximumcurrentdrawis50mA.

• GND. Ground pins.

The ATMEGA has 256 KB of flash memory for storing code (of which

8 KB is used for the bootloader), 8 KB of SRAM and 4 KB of EEPROM

(which can be read and written with the EEPROM library).

Each of the 54 digital pins on the Mega can be used as an input or output,

using pinMode(), digitalWrite(), and digitalRead() functions. They operate at

5 volts. Each pin can provide or receive a maximum of 40 mA and has an

internal pull-up resistor (disconnected by default) of 20-50k Ohms. In

addition, some pins have specialized functions:

• Serial: 0 (RX) and 1 (TX); Serial 1: 19 (RX) and 18 (TX); Serial 2: 17

(RX) and 16 (TX); Serial 3: 15 (RX) and 14 (TX). Used to receive (RX)

and transmit (TX) TTL serial data. Pins 0 and 1 are also connected to the

corresponding pins of the ATMEGA USB-to-TTL Serial chip.

• External Interrupts: 2 (interrupt 0), 3 (interrupt 1), 18 (interrupt 5), 19

(interrupt 4), 20 (interrupt 3), and 21 (interrupt 2). These pins can be

47 configured to trigger an interrupt on a low value, a rising or falling edge, or

a changing value. See the attach Interrupt() function for details.

• PWM: 0to13. Provide 8-bit PWM output with the analogWrite() function.

• SPI: 50 (MISO), 51 (MOSI), 52 (SCK), 53 (SS). These pins support SPI

communication, which, although provided by the underlying hardware, is

not currently included in the Arduino language. The SPI pins are also broken

out on the ICSP header, which is physically compatible with the

Duemilanove and Diecimila.

• LED: 13. There is a built-in LED connected to digital pin 13. When the pin

is HIGH value, the LED is on, when the pin is LOW, it's off.

# TIJER || ISSN 2349-9249 || © February 2024, Volume 11, Issue 2 || www.tijer.org

• I2C: 20 (SDA) and 21 (SCL). Support I2C (TWI) communication using the

Wire library (documentation on the Wiring website). Note that these pins

are not in the same location as the I2C pins on the Duemilanove.

The Arduino UNO has 16 analog inputs, each of which provide 10 bits of

resolution (i.e. 1024 different values). By default they measure from ground

to 5 volts, though is it possible to change the upper end of their range using

the AREF pin and analog Reference() function. There are a couple of other pins on the board:

• AREF. Reference voltage for the analog inputs. Used with analog

Reference().

• eset. Bring this line LOW to reset the microcontroller. Typically used to add

a reset button to shields which block the one on the board.

# **PYTHON**

Python is a widely used high-level programming language for generalpurpose

programming, created by Guido van Rossum and first released in

1991. An interpreted language, Python has a design philosophy that

emphasizes code readability (notably using whitespace indentation to

delimit code blocks rather than curly brackets or keywords), and a syntax that

allows programmers to express concepts in fewer lines of code than might be

used in languages such as C++ or Java. The language provides constructs

intended to enable writing clear programs on both a small and large scale.

Python features a dynamic type system and automatic memory

management and supports multiple programming paradigms,

including object-oriented, imperative, functional programming,

and procedural styles. It has a large and comprehensive standard library.

Python interpreters are available for many operating systems, allowing

Python code to run on a wide variety of systems. C Python, the reference

implementation of Python, is open source software and has a communitybased

development model, as do nearly all of its variant implementations. C

Python is managed by the non-profit Python Software Foundation.

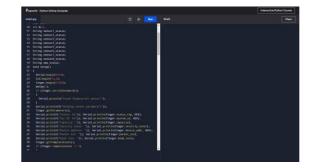
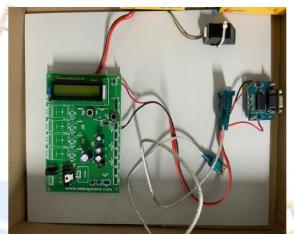


fig: 3 Code Snippet



#### fig:4 System Prototype

#### X. CONCLUSION

In the modern world, the use of computers and mobile phones is becoming

rampant. As a result, the crime recording system needs to embrace the new

technologies. This application will present a simple, convenient, cost-effective

and efficient online crime recording system with a sensitive and intelligible web

interface, thereby it reduces the amount of manual data entry. It is software

which helps the policemen to work with the crimes and criminals easily.

Additionally, it notifies the registered policemen about the release of criminals.

This crime management system is a solution to all the problems related to the

crime reports, criminal details and their crimes.

#### XI. **REFERENCES:**

[1]. Oludeli Awodeli, Onulri Ernest. E,"A Real-Time Records Management System for National Security Agencies Department of Computer Science, Babcock University, Ilishan-Remo, Ogun State, Nigeria, Vol.3, Issued 12, May 2015. [2]. Sourav Bhowmick, "Criminal Report Management System", Department of Computer Science and Engineering, ADMAS Institute of Technology, 2013.

[3]. Mohammad Shahnawaz, "Crime Reporting and Crime Updates", 3rd International Conference on System Modeling in Research Trends(SMART) College of Computer Science and Information Technology (CCSIT), Teerthanker Mahaveer University, Moradabad, 2014. [4]. Srinidhi Eragam Reddy, Ramya Sahiti Amathi and Priyanka Vakkalagadda "Crime Reporting Interface Design using Mobile Technology", 2nd February, 2015. [5]. R. G. Jimoh, K. T. Ojulari, and O.A. Enikuomehin, "A L FOR Scalable Online Crime Reporting System", Department of Computer Science, University of Ilorin, Nigeria, Vol.7.No.1, January, 2014 [6] Highlights of 2009 Motor Vehicle crashes, Tramc Safety Facts, Research Notes, NHTSA (National Highway traffic Safety Administration) [Online], Accessed on 16 October 2011. [7] N. Virtanen, A Schirokoff and 1. Luom, "Impacts of an automatic emergency call system on accident consequences," 18th ICTCT, Workshop Transport telemetric and safety, 2005. [8] S. M. Tang and H. 1. Gao, "Tramc-incident detection- algorithm based on 68 nonparametric regression," IEEE Transactions on Intelligent Transportation Systems, 2005. [9] G. Rose, "Mobile Phones as Traffic Probes: Practices, Prospects and Issues," Transport Reviews, 2006. [10]P.Mohan, Y.N.Padmanabhan, and R.Ramjee, "Nericel1:richmonitoring of road and traffic conditions using mobile smartphones," in Proceedings of the 6th ACM conference on Embedded network sensor systems, 2008.[11] C. Thompson, 1. White, B. Dougherty, A Albright and D.C. Schmidt, "Using Smartphones to Detect Car Accidents and Provide Situational Awareness to Emergency Responders," in Proceedings of 3'd Mobile Wireless Middleware, Operating Systems, and Applications Conference, [12] J. Yoon, B. Noble and M. Liu, "Surface street traffic estimation," in Proceedings of 5th International Conference on Mobile Systems, Applications, and Services, 2007. [13] Md. Syedul Amin, Jubayer Jalil, M. B. I. Reaz, "Accident Detection and Reporting System using GPS, GPRS and GSM Technology," in Proceedings of International Conference Informatics. on Electronics & Vision, 2012. [14] Chalermpol Saiprasert and Wasan Pattara-Atikom, "Smartphone Enabled Dangerous Driving Report System," in Proceedings of 46th Hawaii International Conference on System Sciences, 2013.