



## FACE DETECTION AND RECOGNITION BASED VEHICLE ACCESSING

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### Abstract:

The project aims at designing an intelligent vehicle control system using Face Detection technology. The system gives access to the vehicle only if authorized person is to drive the vehicle. The system also continuously records the vehicle location coordinates given by GPS receiver into a memory card. The owner of the vehicle can send predefined format SMS to the system to find out its location. The traveled path of the vehicle can be seen on Google Earth. The human face plays an important role in our social interaction, conveying people's identity. Using the human face as a key to security, face recognition technology has received significant attention in the past several years due to its potential for a wide variety of applications in both law enforcement and non-law enforcement. A facial recognition system is a computer application for automatically identifying or verifying a person from a digital image or a video frame from a video source.

### INTRODUCTION

The GSM modem provides the communication mechanism between the user and the microcontroller system by means of SMS messages. It is capable of receiving a set of command instructions in the form of Short message service and performs the necessary actions. We will be using a dedicated modem at the receiver module i.e. and send the commands using SMS service as per the required actions.

This system is composed of a GPS receiver, Microcontroller and a GSM Modem. GPS Receiver gets the location information from satellites in the form of latitude and longitude. The Microcontroller processes this information and this processed information is sent to the user/owner using GSM modem.

In this project face recognition can be done by interfacing USB camera to the microcontroller through PC with Mat lab. An embedded system is a system which is going to do a predefined specified task is the embedded

system and is even defined as combination of both software and hardware. A general-purpose definition of embedded systems is that they are devices used to control, monitor or assist the operation of equipment, machinery or plant. "Embedded" reflects the fact that they are an integral part of the system. At the other extreme a general-purpose computer may be used to control the operation of a large complex processing plant, and its presence will be obvious.

### LITERATURE SURVEY

- When starting a new project, simply select the microcontroller you use from the Device Database and the  $\mu$ Vision IDE sets all compiler, assembler, linker, and memory options for you.
- Numerous example programs are included to help you get started with the most popular embedded 8051 devices.
- The Keil  $\mu$ Vision Debugger accurately simulates on-chip peripherals (I<sup>2</sup>C, CAN,

UART, SPI, Interrupts, I/O Ports, A/D Converter, D/A Converter, and PWM Modules) of your 8051 device. Simulation helps you understand hardware configurations and avoids time wasted on setup problems. Additionally, with simulation, you can write and test applications before target hardware is available.

- When you are ready to begin testing your software application with target hardware, use the MON51, MON390, MONADI, or FlashMON51 Target Monitors, the ISD51 In-System Debugger, or the ULINK USB-JTAG Adapter to download and test program code on your target system.

## PROPOSED WORK

### Harvard Architecture:

Computers have separate memory areas for program instructions and data. There are two or more internal data buses, which allow simultaneous access to both instructions and data. The CPU fetches program instructions on the program memory bus. The Harvard architecture is computer architecture with physically separate storage and signal pathways for instructions and data. The term originated from the Harvard Mark I relay-based computer, which stored instructions on punched tape (24 bits wide) and data in electro-mechanical counters. These early machines had limited data storage, entirely contained within the central processing unit, and provided no access to the instruction storage as data. Programs needed to be loaded by an operator, the processor could not boot itself.

There two different type's memory architectures.

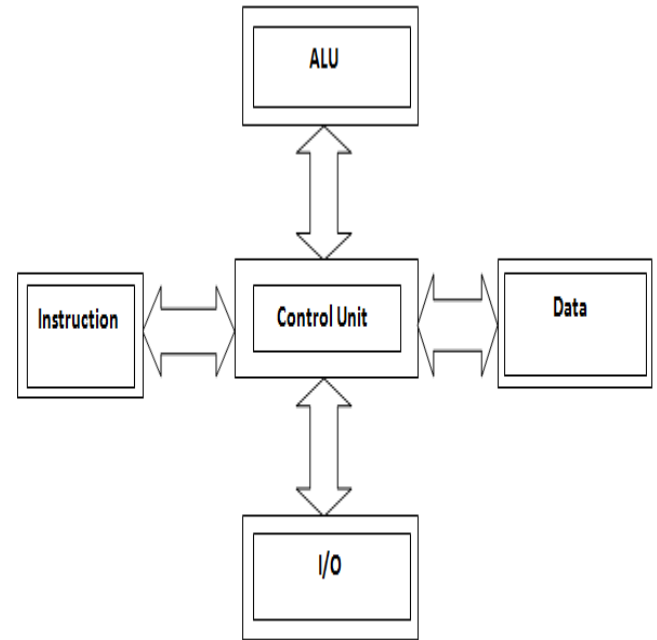


Figure2.4: Harvard Architecture

PIC given by Microchip Technology to identify its single-chip microcontrollers. These devices have been very successful in 8-bit microcontrollers.

### Low - end PIC Architectures:

Microchip PIC microcontrollers are available in various types. When PIC microcontroller MCU was first available from General Instruments in early 1980's, the microcontroller consisted of a simple processor executing 12-bit wide instructions with basic I/O functions. These devices are 12C5XX, 16C5X, 16C505.

### RESULT

There are few tests have been done to find the analysis for the project. Detection of face is using Mat lab software. The software takes the code and gives access to the camera automatically, through which the face of the person accessing the vehicle will be detected

and the embedded system gives access to the vehicle.



**Fig 4.1: Face Detection based Vehicle  
Accessing**

Factors such as environmental changes and mild changes in appearance impact the technology to a greater than many expectations. For implementations where the biometric system must verify and identify users reliably over time, facial scan can be a very difficult, but not impossible, technology to implement successfully. The design of the embedded system is shown in the above figure.

### CONCLUSION

The project is being designed and implemented with embedded system domain using Face Detection Method. Experimental work has been carried out carefully. The result shows that higher efficiency is indeed achieved using the embedded system. The proposed method is verified to be highly beneficial for vehicle owner

### REFERENCES

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