Finger Print Vehicle Starter

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Abstract

This project is initiated by the inception of an idea which not only aims at using the product but also study in depth about existing and proposed systems in the same category. A proposal is taken, which is far better from the existing system.

Devices Required

ATmega328P AVR (Microcontroller), R305 Fingerprint Sensor, DC Motor(Engine), Cables & Connectors, LCD display, Transformer, Regulator, Rectifier, Push Button and Integrated circuit Components.

Existing System

Vehicle security is an important issue these days due to the rising number of vehicle thefts. Also one more issue with vehicles is handling its keys. Keys need to be carried and misplacing keys or loosing them will cause a serious issue. The problem can overcomed by using a fingerprint authenticated vehicle starter system. The system provides a secure and hassle free way to start/stop vehicle engine.

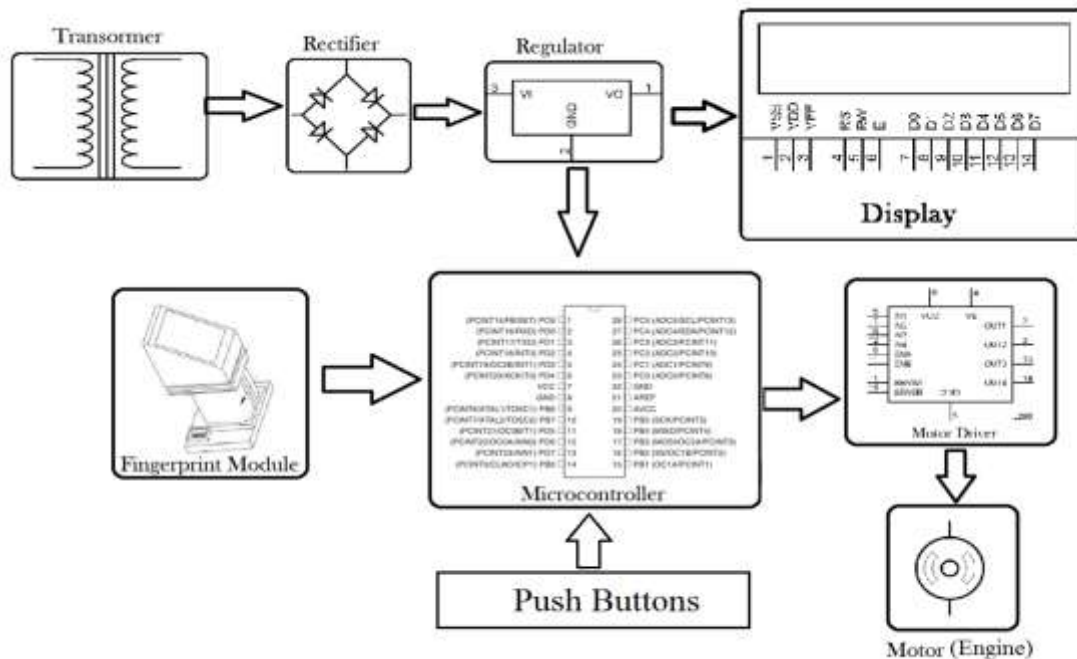## Disadvantages of Existing System

Block Diagram:

The existing system doesn't gives a proper solution to the user that when the user is said to be meet with an accident,only the biometric finger print authorised person can acess or deny the start and stop of the particular vehicle's engine that the user is engaged with.

Proposed System

The system is composed of the microcontroller based integrated circuit components with finger print and display product.The existing system has been modified by adding a message alert system to it.When an unauthorised person or burglar tries to take upon the vehicle a message is sent to the user or the authorised person in a proper encrypted way.

Advantages of Proposed System

- ➢ Ease of use
- ➢ Highly accurate and secured
- ➢ Use of small storage space
- ➢ Most economical security technique
- ➢ Only authenticated person or user can acess it and not other member

Modules

- Finger Print User Configuration
- Recognition
- User acess
- Engine acess
- Security Alert

Finger Print User Configuration

The user are allowed to enable or configure their biometric finger print identification to the finger print sensor.

Recognition

After the process of configuration,the user is said to keep their finger print id to get accesed.

User acess

The authorised user gets accessed to start or stop the vechicle and information gets displayed over the LCD display.

Engine acess

In this module,the engine is ready to run.

Security Alert

If there is any acess attempt of unauthorised person,the message alert system gets avoked and sends a message to the biometric finger print user.

Source Code:

(Embedded Aurdino C language)

Begin

```
#include <Adafruit_Fingerprint.h>
#include <LiquidCrystal.h>
boolean toggle = false;
uint8_t p; char c; uint8_t d; uint8_t id;
uint8_t getFingerprintEnroll();
uint8_t stat=255;
uint8_t getFingerprintIDez();
Adafruit_Fingerprint finger =
Adafruit_Fingerprint(&Serial);
uint8_t readnumber(void);
uint8_t deleteFingerprint(uint8_t);
uint8_t
uploadFingerpintTemplate(uint16_t);
const int sw2=11; const int sw1=10;
int mode_switch_stat=0;
int ok_switch_stat=0;
const int Bike_start=8;
const int bat_start=9;
const int RS=7; const int EN=6;
const int D4=5; const int D5=4;
const int D6=3; const int D7=2;
LiquidCrystal lcd(RS, EN, D4, D5,
D6, D7); void setup() {pinMode(sw1,
INPUT); //mode switch pinMode(sw2,
INPUT); //ok switch
pinMode(Bike_start,OUTPUT);
pinMode(bat_start,OUTPUT);
digitalWrite(Bike_start,LOW);
digitalWrite(bat_start,LOW);
Serial.begin(57600);
lcd.begin(16, 2); lcd.setCursor(0, 0);
lcd.print("fingerprint bike");
lcd.setCursor(0, 1);
lcd.print("unlocked system");
delay(1000); lcd.clear();

lcd.print(" Initializing");
```

```
delay(1000); finger.begin(57600);
// set the data rate for the sensor serial
port
if (!finger.verifyPassword()) {
lcd.clear(); lcd.print("Did not find");
lcd.setCursor(0, 1);
lcd.print(" sensor :(");
while (1); }
if(finger.loadModel(0)!=FINGERPRI
NT_OK) {lcd.clear();
lcd.print("No Master Detected");
delay(2000);
lcd.print("Enrolling Master");
lcd.setCursor(0, 1);
lcd.print("Fingerprint");
id=0;while (!getFingerprintEnroll() );
}} void loop() {
mode_switch_stat==LOW;
ok_switch_stat==LOW;
delay(1000); lcd.clear();
lcd.print(" Waiting for ");
lcd.setCursor(0, 1);
lcd.print(" valid finger ");
stat=255; stat=getFingerprintIDez();
if(stat==255) { delay(1000);
lcd.clear();
lcd.print("error!!try again"); }
else { mode_switch_stat=LOW;
delay(100);mode_switch_stat=digitalR
ead(sw1);delay(100);
if(stat==0 &&
mode_switch_stat==HIGH{
//special mode open
delay(1000);

lcd.setCursor(0, 1);
lcd.print(" 3.delete"); delay(4000);
lcd.clear(); lcd.print("enter choice ");
d=readnumber(); lcd.setCursor(0, 1);
lcd.print(" "); lcd.print(d); switch (d){
case 1: delay(1000); lcd.clear();
lcd.print("Ready to enroll");
lcd.setCursor(0, 1);
lcd.print("a fingerprint!");delay(1000);
lcd.clear(); lcd.print("Please Type
the"); lcd.setCursor(0, 1);lcd.print("ID
# "); id = readnumber(); delay(1000);
```

```
lcd.clear();lcd.print("Enrolling ID # ");
lcd.setCursor(0, 1); lcd.print(id);
while (! getFingerprintEnroll() );
break; case 2: delay(1000); lcd.clear();
lcd.print("Enter ID # ");
id = readnumber(); lcd.setCursor(0, 1);
lcd.print(id); delay(1000);
uploadFingerpintTemplate(id); break;
case 3: delay(1000); lcd.clear();
lcd.print("Type the ID you");
lcd.setCursor(0, 1);
lcd.print("want delete# ");
id = readnumber();
lcd.print(id); delay(1000);
if(id==0) {
delay(1000); lcd.clear();
lcd.print("you cannot delete");
lcd.setCursor(0, 1);
lcd.print("Master id"); }
else{
delay(1000); lcd.clear();
lcd.print("deleting ID # ");lcd.print(id);
deleteFingerprint(id); }break;
default:

delay(1000);lcd.clear();
lcd.print("wront entry try again!"); } }
else if(stat!=255) {toggle = !toggle;
digitalWrite(Bike_start,toggle);
digitalWrite(bat_start,toggle);
delay(1000);
lcd.clear(); if(toggle==1)
lcd.print(" bike started"); else
lcd.print(" bike stopped");
delay(5000); }
else {
delay(1000); lcd.clear();
lcd.print("wrong entry try again!"); } }
delay(50);}
// returns -1 if failed, otherwise returns
ID #
uint8_t getFingerprintIDez() {
p=255;
while (p != FINGERPRINT_OK) {
p = finger.getImage();
p = finger.image2Tz();
p = finger.fingerFastSearch(); }
```

```
// found a match!
return finger.fingerID; p=255; }
uint8_t readnumber(void) {
mode_switch_stat=LOW;
ok_switch_stat=LOW;
uint8_t num = 0;
while (ok_switch_stat==LOW) {
mode_switch_stat=digitalRead(sw1);
ok_switch_stat=digitalRead(sw2);
delay(250);
if(mode_switch_stat==HIGH)
num++;
while(mode_switch_stat!=LOW &&
ok_switch_stat!=LOW); }

lcd.print("Unknown error: 0x");
lcd.print(p, HEX); return -1;}}
uploadFingerpintTemplate(uint16_t id)
{uint8_t p = finger.loadModel(id);
delay(1000); lcd.clear(); switch (p) {
case FINGERPRINT_OK:
lcd.print("fingerprint "); lcd.print(id);
}

lcd.setCursor(0, 1);lcd.print("
available");break;
case
FINGERPRINT_PACKETRECIEVEE
RR: lcd.print("Communication err");
return p;default: lcd.print("fingerprint
"); lcd.print(id); lcd.setCursor(0,
1);lcd.print(" not available");return p;
}
```

End

Conclusion

From this project we conclude that an approach is taken to control theft of vehicle with the help of various devices and the user was informed about the entry of the person through a SMS sent by the modem at the receiver.