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UPS Power Fault Acknowledgement using SMS

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Abstract: ***These days uninterruptable powers supply (UPS) is wanted in every business or organization to protect any type of equipment that can be plugged on power. A UPS is typically used to secure computers, server room, IT devices or other related devices where an unpredicted power disturbance could generate any damages, fatalities, business disturbance and/or data loss. The projected model will notify the right person in charge of forthcoming faults and propose by short message (sms). The present paper will grant both design and the implementation of short message acknowledgement system that is associated with UPS.***

Keywords: Failure events, SMS Notification Systems, Power Outage.

I. INTRODUCTION

The business development extension becomes very complex the computerized system. The prices of non-designed breaks are on high level which a project for fault discovery and separation is more crucial. The development in IT permits one people using a mobile device like a phone has instant rights to an important evidence or information being anywhere in the world. This work plans the production of a system, which diminishes the time used on UPS to get faulted and the maintenance time. The spent time, depending on the occurred fault, portion of the components still is in full action, nevertheless, if to retain them so for an extensive time can compromise the entire system. The developed device analyzes the behavior of the equipment and detects some types of power outage. After that, it transmits SMS to right person from company staff.

II. REVIEW PHASE

The difficulties in the steady state and to pay the development of the fortification system projects.
Practically and theoretically there is no system that cannot fail, so hence, it is clear each UPS could and will ultimate fail. Therefore, it is required to know the way and the root cause of the failures and the fees of reducing them. In this work, we branded different means failure happened in UPS.

A. Some Units

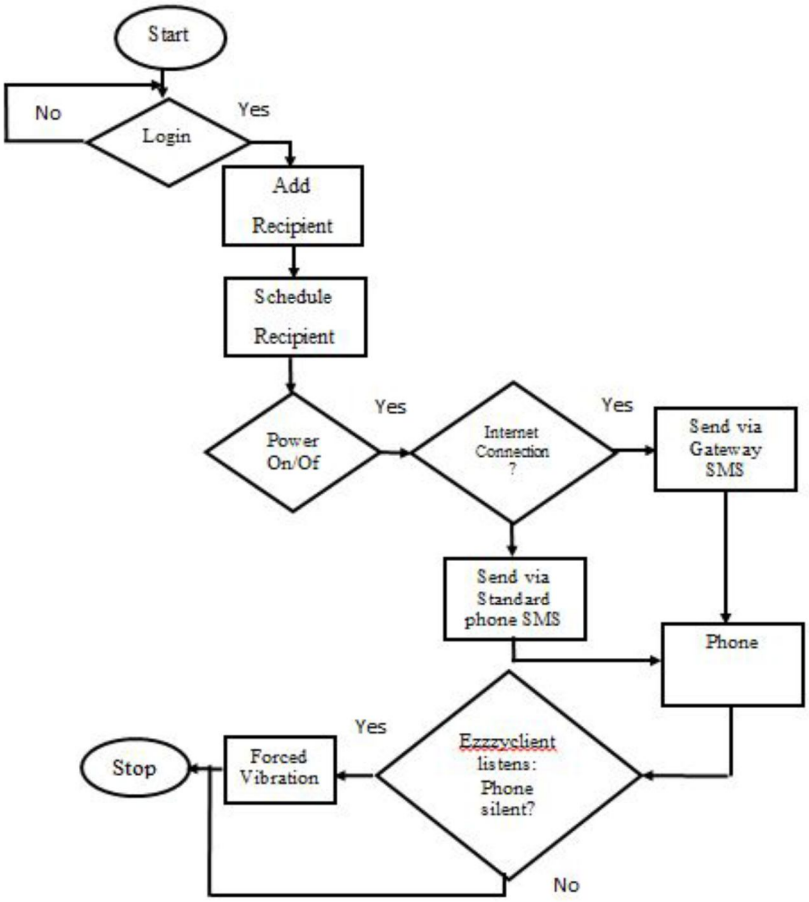
V=Volts
I=Current
T=Temperature
C=Celsius
F=Fahrenheit
T=C/F

The power supply (UPS) works on V/I all electronic device prejudice with certain energy with esteemed current. Each part dissolve some quantity of heat in after biasing. This heat is one-time usual or onetime do unusual change in semiconductor devices, this produces in system failure. The primary fault is where it leaves the device is not function and the second fault is where the device remains functioning, in poor form, delivering the loads. Each cause that stops in production system can generate a necessary cost,As well linking lives or crucial information. In infirmaries, the usage of UPS is most needed. In this paper the UPS technician or/and related people will perceive different fault with no disturbance of UPS. An uninterruptible power supply also plays a role of power source; UPS battery is an electrical device which delivers reserve power to a load when the main input power source usefulness fails. The turned ON battery runtime of most UPS power source is quite being for lesser units but satisfactory to permit time to carry a secondary power source on line.
The turned OFF or standby UPS generates elementary features, offering surge defense and battery backup. The defensed device is usually connected to entering usefulness power. When the entering voltage drops lower a determined level the SPS goes ON its internal DC-AC inverter circuit, which powered from an interior battery.

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The SPS then mechanically turns the plugged devices ON to its DC-AC inverter output frequency instability: well-defined as provisional changes in the mains frequency. UPS is used to supply uninterrupted power to critical loads like computers, telecom devices, medical equipement, etc… AS sensitive equipement most important, their disturbance may cause a critical accident.

A. System Flowchart



B. Working of GSM Module in UPS Circuit

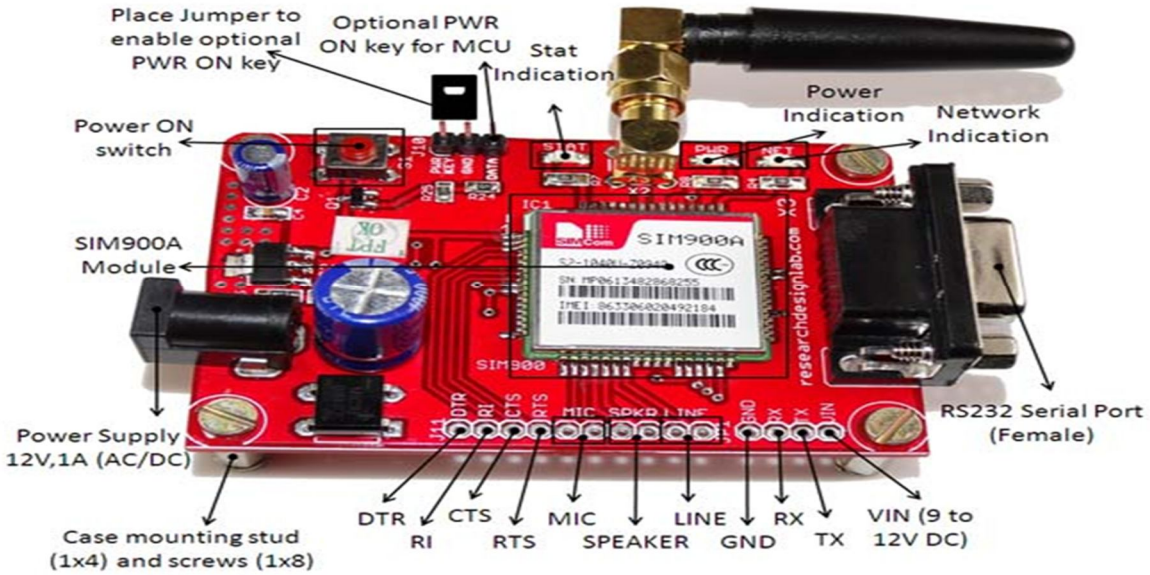


Fig 1: SIM Module

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C. Programming Part

```
#include <SoftwareSerial.h>
SoftwareSerial SIM900(7, 8);
  //variable for pin input
const int pinUPS = 5;
const int pinEUCL = 6;
  //----------------------
void setup() {
  //Suitch on Sim900
digitalWrite(9, HIGH);
delay (1000);
digitalWrite(9, LOW);
delay(5000);
  //Status of PinVariable
  pinMode(pinUPS,INPUT);
  pinMode(pinEUCL,INPUT);

  digitalWrite(pinEUCL,LOW);
  digitalWrite(pinUPS,LOW);

  SIM900.begin(19200);
  Serial.begin(19200);
  delay(20000);

}

void loop() {

  boolean etat1 = digitalRead(pinEUCL);
  boolean etat2 = digitalRead(pinUPS);

  if(etat2 == LOW && etat1 == HIGH)
  {
    sendSMS1();
    Serial.println("SMS 1 : OK ");
  }
  else if(etat2 == HIGH && etat1 == LOW)
  {
  sendSMS2();
  Serial.println("SMS 2 : OK ");
  }
  else if(etat2 == LOW && etat1 == LOW)
  {
  sendSMS3();
  Serial.println("SMS 3 : OK ");
  }
  else
  {

   }
```

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```
    delay(240000);
}

void sendSMS1() {

  SIM900.print("AT+CMGF=1\r");
  delay(100);
 SIM900.println("AT + CMGS = \"+250788353483\"");
  delay(100);
  SIM900.println("STATUS ON SONATUBE : UPS IS DOWN , EUCL IS UP ");
  delay(100);
  SIM900.println((char)26);
  delay(100);
  SIM900.println();
  delay(5000);
}

void sendSMS2() {
  SIM900.print("AT+CMGF=1\r");
  delay(100);
 SIM900.println("AT + CMGS = \"+250788228248\"");
  delay(100);
  SIM900.println("STATUS of : UPS IS UP , Normal power IS DOWN ");
  delay(100);
  SIM900.println((char)26);
  delay(100);
  SIM900.println();
  delay(5000);
}

void sendSMS3() {
  SIM900.print("AT+CMGF=1\r");
  delay(100);
 SIM900.println("AT + CMGS = \"+250788228248\"");
  delay(100);
  SIM900.println("STATUS of : UPS IS DOWN , Normal power IS DOWN ");
  delay(100);
  SIM900.println((char)26);
  delay(100);
  SIM900.println();
  delay(5000);
}
```

D. Acronyms

The acronyms is as follows:

1) *UPS:* Uninterruptible power supply
2) *GSM:* Global system of mobile for all
3) *SMS:* Short message service.
4) *SIM:* Subscriber identity module

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The above acronyms included in paper equalities. As comparator is used in circuit. Originally, comparator links the quantity with address quantity and then produces the outcome. For example if the voltage is compared with address voltage, the outcome is taken and modified in voltage is take as an error or fault.

Equalities description

$$V_o = \begin{cases} 1, & \text{if } V_+ > V_- \\ 0, & \text{if } V_+ < V_- \end{cases}$$

A comparator is an equipment used to relate 2 voltages and produces a signal describing a superior one. It possesses 2 input terminals and 1 output. The outcome is a comparator of a dedicated variance amplifier. They are generally reserved to measure and digitize analog signals as well as oscillators.

III. RECOMMENDATIONS

The system of fault monitoring of UPS notifies the person and allots against the future faults. The designed circuit submits short message (sms) to the right person as well as the UPS dealer. If likely preventive actions should be taken to escape the fault on UPS. For instance it temperature of system rises the system submits short message (sms) if there no taken preventive actions, the integrated fan will be switched ON in the system. If voltage is changing then after the monitoring system is regulate itself to assured level then it send a short message to turn OFF the UPS system.

IV. SOME COMMON MISTAKES THAT CAN OCCUR

The systems are made earlier without proficient mechanism. It notifies the right person after system failure, this can bring postponement in online data backup and also installation of some systems. The projected system will avoid the system as fine it not only notify the happening faults on UPS but also takes about preventive actions to escape it. UPS is temperature and current equipment as temperature rises the semiconductor equipment performance changes outcome in system letdown.

A. Some Advantages Of The System

1) It is possible to follow up the UPS system.
2) Reduce the time of fault detection.
3) Exclusion of maintenance long delays.
4) Prevent frequent fault.
5) Reduce transportation

B. Some Disadvantage of The System

1) This system needs connectivity.
2) One component can submit fault notification only.
3) Once the phone of right person if off he/she will not be notified.

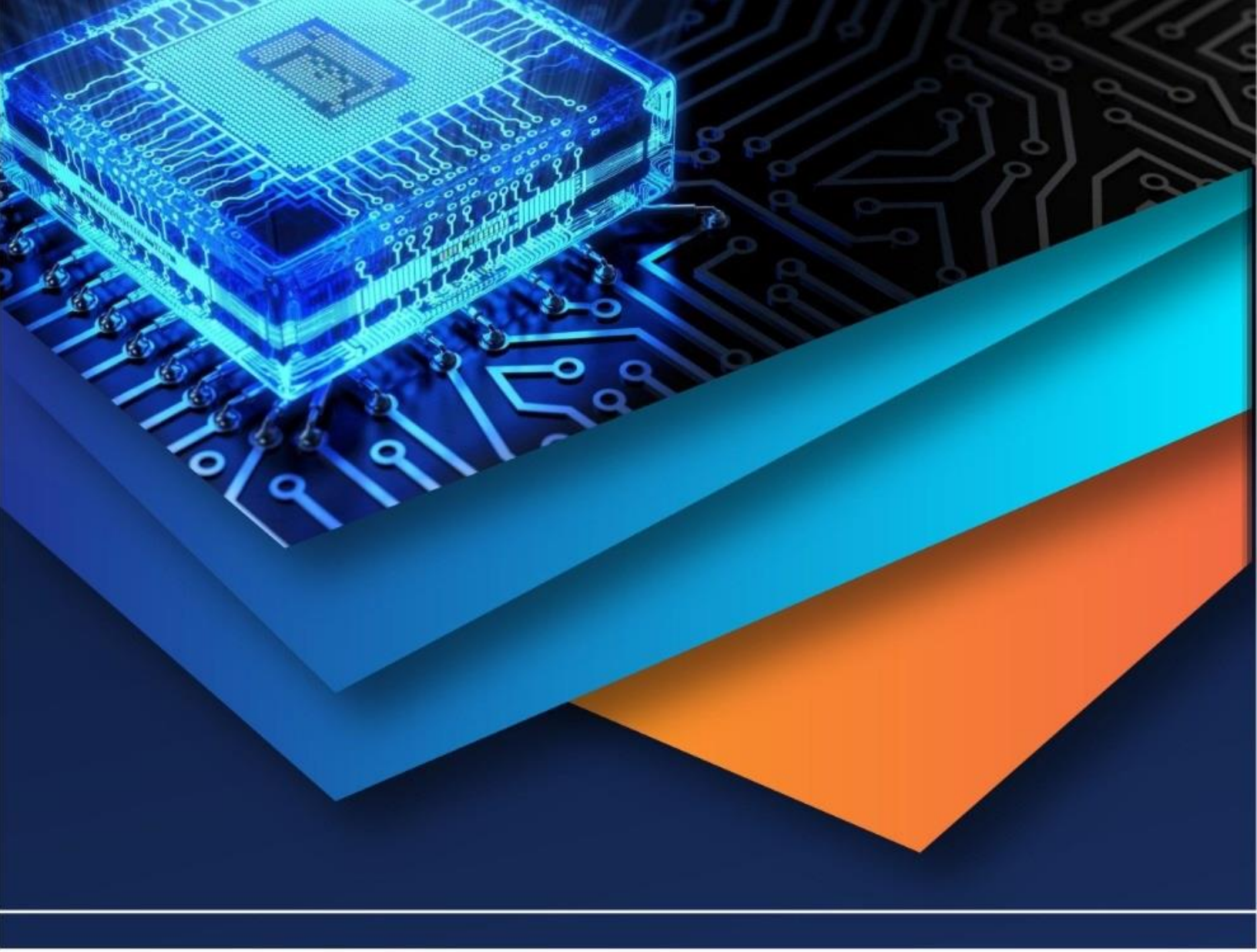
V. CONCLUSION

In the present paper we presented the design and the its implementation of UPS power Fault Acknowledgement Using SMS once the power outage happens. The produced system is tested with the mobile phone to assure its effectiveness. The planned recipient will receive notifications being anywhere from the system via GSM technology. The sms notification system is ease to use and friendly. This system is convenient when the staff isn't in the Network Operation Center (NOC).

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