# MONITORING AND TRACKING SYSTEM FOR ELEPHANTS USING GSM GPS WITH SMART ELECTRIC FENCING

## AIM:

Design and Development of monitoring and tracking system for elephants using GSM GPS with smart electric fencing.

## PURPOSE:

Agriculture farming is main source of our country. Protection of farming is very important from wild animals like elephants. Wild elephants can destroy farms within less time. To protect crops from elephants, best option is electric fence. Along with electric fence alert notification is also added advantage to formers. Here we propose system like monitoring and tracking system for elephants using GSM GPS with smart electric fencing.

## DESCRIPTION:

This project includes GSM (Sim800C) module, which is connected to Arduino through UART interface. GPS module (NEO-6M) module connected to Arduino UART. Ultrasonic sensor connected to Arduino digital pin. Sound sensor (MIC) connected to Arduino digital pin. Fencing circuit controlled by relay which is connected to Arduino.



## WORKING:

When elephants come near to Ultrasonic sensor, Electric fence will be ON. Elephant trumpet (elephant sound) can be detected by MIC sensor. This can helps to know about elephants before they reach farms. These two sensors status will be displayed on LCD. SMS notification will be send to registered mobile number. SMS contains location details along with Google maps assistance. Using location farmers can know the elephants coming to which farm. Buzzer sound will come if any one sensor activated.

## TECHNICAL SPECIFICATIONS

## HARDWARE:

| | | |
|---|---|---|
| Microcontroller | : | Arduino Uno |
| Crystal | : | 16 MHz |
| LCD | : | 16X2 LCD |
| GSM | : | SIM800C |
| GPS | : | NEO-6M |
| Detection Sensor | : | Ultrasonic sensor (HCSR04) |
| Sound Sensor | : | MIC |
| Buzzer | : | 5V DC |
| Relay | : | 12V DC Electromagnetic |
| Power Source | : | 12v 2 amp Adaptor |

## SOFTWARE:

Arduino IDE

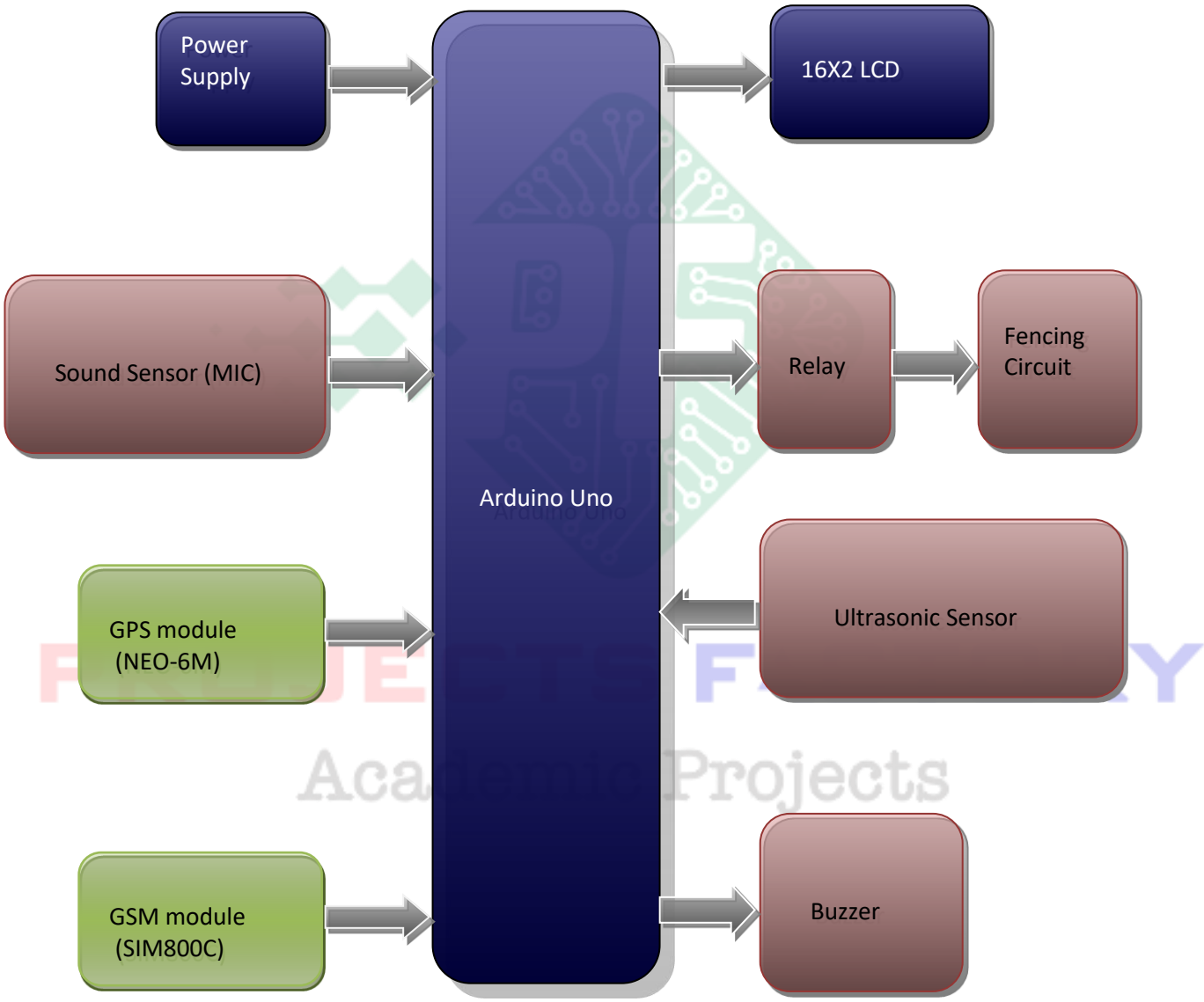
Proteus based circuit diagram



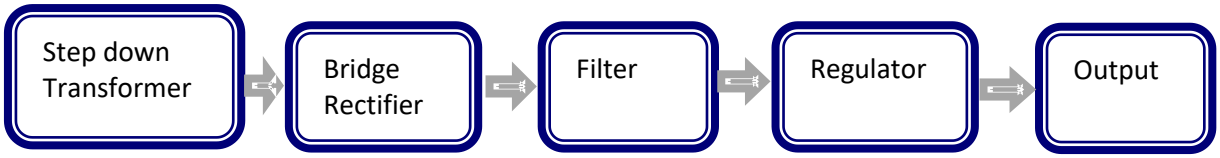
## APPLICATIONS:

- Farming Security
- Industrial Security
- Fencing Applications

## BLOCK DIAGRAM:



## POWER SUPPLY BLOCK DIAGRAM:




## INTERFACES COVERD:

- We have covered GSM (SIM800C) module interfacing
- GPS (NEO-6M) module interfacing
- Ultrasonic (HCSR04) and MIC Sensor Interface
- Electric Fence circuit Interface