AUTOMATIC VEHICLE ACCIDENT DETECTION AND MESSAGING SYSTEM USING GSM, GPS, PI PICO

AIM:

Design and Development of Automatic Vehicle Accident Detection and Messaging System Using GSM, GPS, PI pico.

PURPOSE:

The modern technology brings more convenience to our lives. This advancement happens in automobiles and every one efforts vehicle and using volume rate also increased. High volume rate of vehicles is one of the causes of accidents. Colliding of vehicles and tilting of vehicle because of high speed these are the causes of most accidents. There are lots of securities systems available in vehicles but death rate in accidents are increased day by day because of no system that will inform immediate accident alerts. This kind of system will intimate vehicle accident location to police or hospital. Immediate action can be taken using this kind of systems. This system consists of accident detection sensor and tilt sensor along with GSM, GPS. The proposed project title is automatic vehicle accident detection and messaging system using GSM, GPS, PI pico.

DESCRIPTION:

Raspberry pi pico has two UART ports. GSM module (Sim800c) interfaced with first uart port and GPS module (NE-06) interfaced with second uart port. MEMS sensor connected to I2c port of pi pico and limit switch connected to digital pin of pi pico.

WORKING:

Limit switch placed in front of vehicle and it will activate when collision happen with another vehicle. MEMS sensor tells when vehicle tilted in any direction. Raspberry pi pico get these two sensors details

and if any sensor activated then SMS will send to registered mobile number. SMS contains vehicle Google maps location for easy finding of vehicle.

TECHNICAL SPECIFICATIONS:

HARDWARE:

Microcontrollers	:	Raspberry PI pico
LCD	:	16X2 LCD
GSM Module	:	SIM800C
GPS Module	:	NEO-6M
Accident Sensor	:	Limit Switch
Tilt Sensor	:	MEMS sensor (ADXL345)
Power Source	:	12VDC adaptor

SOFTWARE:

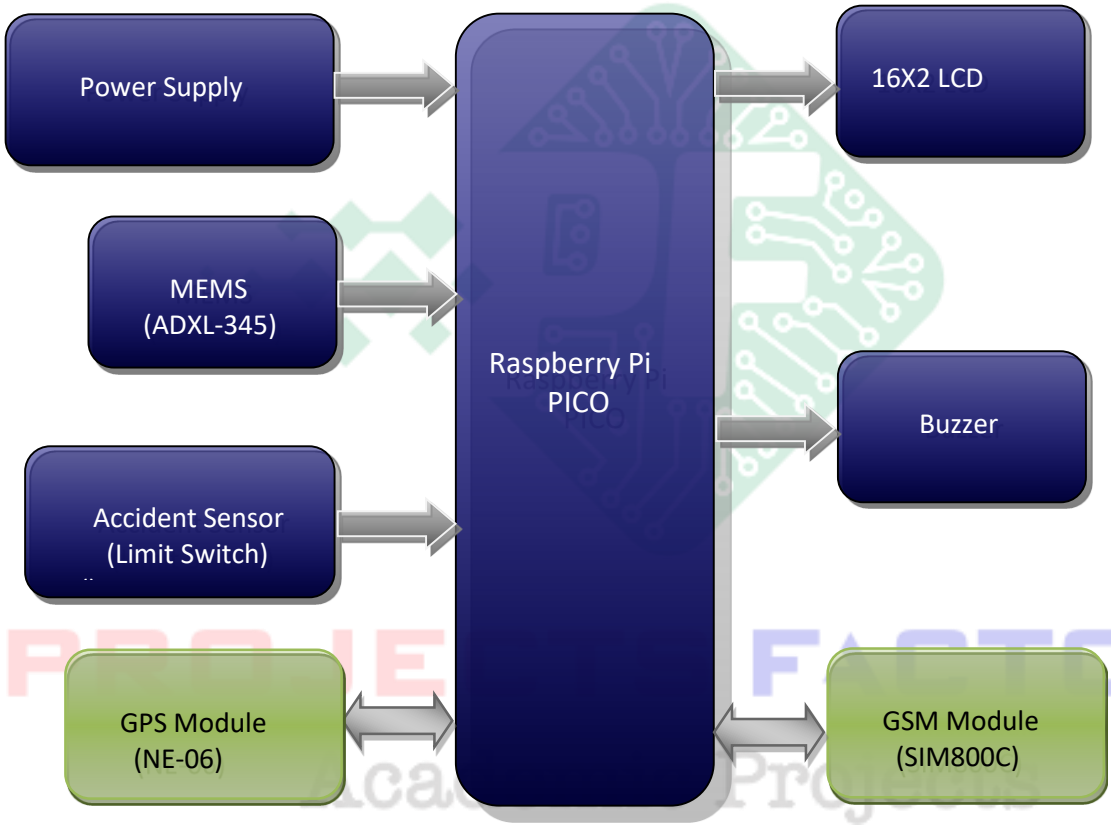
Arduino IDE

Proteus based circuit diagram

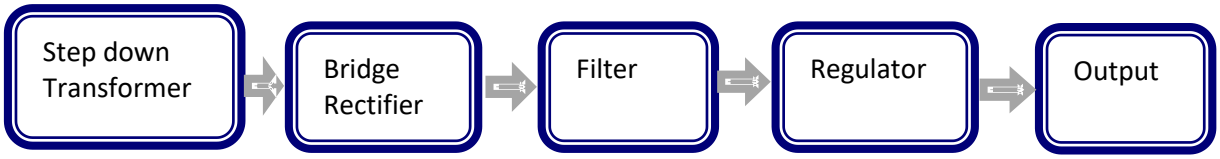
APPLICATIONS:

- Vehicle Tracking
- Asset Tracking

BLOCK DIAGRAM:



POWER SUPPLY BLOCKDIAGRAM:



INTERFACES COVERD:

- We have covered Raspberry pi pico firmware
- GSM, GPS and Limit switch interfaces