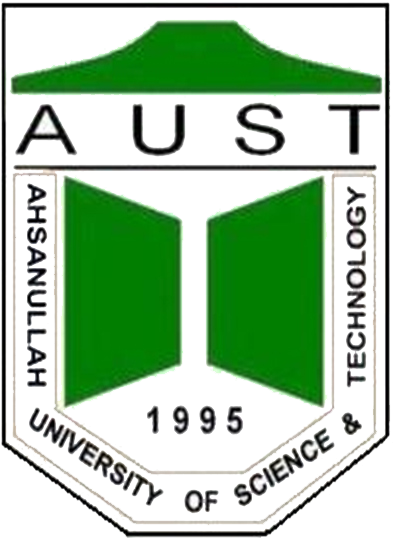
**Ahsanullah University of Science & Technology**

**Department of Computer Science & Engineering**

**Semester Spring 2021**



# CSE 3216

# Microcontroller Based System Design Lab

# Project Proposal

**Project Name:Car Safety System**

**Submitted To**

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**Objective:**

The main objective of this project is to reduce the occurrence of car accidents and its consequences. Our advanced system will ensure the safety of the passenger’s, detects impending collision and alerts driver. The project aims at warning passengers to fasten seatbelts, detecting the obstacles in front of the car and opening the airbag when collision occurs with heavy obstacles, giving alert when the speed is very high. The whole system will be controlled through android interface.

# Social Values:

Day by day, the number of vehicles as well as road accidents are increasing. This system makes the car protected by preventing the chance of major accidents. Seat belts are the best defense against passenger’s and drivers. So, if anyone miss to wear seat belt, our system will alert him/her and compel to buckled up. Forward collision warning is also a part of this system and it gives you an alert if somethings in the road ahead from stopped vehicles to pedestrian’s, cyclists and animals. Automatic emergency bricking can activate the brakes if you ignore the forward collision alerts which will be very effective to save us from accident. Most of the fatal accidents occurs due to over speeding. So, if the car reaches high speed (100 km/hour), then our system will provide an alert. But by any chance when there is a moderate to severe crash, then an airbag will open to protect us. Air bags reduce the chance that your upper body or head will strike the vehicle's interior during a crash. In the event of a collision, the vehicle will conduct an automatic crash notification call. This is how you can make your journey secure by using this system.

# Required Components:

These following parts and tools are required for building this project -

* Arduino MEGA
* SIM 900A GSM Module
* NEO 6M GPS Module
* ADXL335 Accelerometer Sensor
* Dotted Veroboard
* Connecting Wires
* 8V Battery
* HX711AD Weight Sensor
* Bluetooth Module
* Buzzer
* DC Motor
* Ultrasonic Sensor

# Working Procedure:

* Passengers and drivers often forget to fasten their seatbelts or they don’t tie seatbelts because of ignorance. Our **HX711AD Weight Sensor** will detect a person in seat and alert him to fasten seatbelt. **ADXL335 Accelerometer Sensor** will ensure the car is in moving state.
* Many drivers stay busy with phone or other work and they do not notice sudden obstacles. Our **Ultrasonic Sensor** will detect sudden obstacles and alarm the driver through **Buzzer**.
* Our **ADXL335 Accelerometer Sensor** will detect over speeding and alarm the driver.
* Our **NEO 6M GPS Module** will detect current coordinates of the car and **SIM 900A GSM Module** send it to an emergency contact during critical situation.

# Estimated Budget:

|  |  |  |
| --- | --- | --- |
| **Equipment** | **Quantity** | **Budget (Tk)** |
| Arduino Mega 2560 R3 | 1 | 1450 |
| SIM9001 GSM GPRS | 1 | 700 |
| NEO-6M GPS | 1 | 450 |
| Accelerometer ADXL335 | 1 | 390 |
| Vero Board (Dotted) | 1 | 25 |
| HX711AD Weight Sensor | 1 | 140 |
| 12V 300RPM DC Motor | 2 | 520 |
| Buzzer | 1 | 15 |
| HC-05 Bluetooth Module | 1 | 275 |
| Connecting Wire | As required | 100 |
| 8 Volt Battery | 2 | 110 |
| Ultrasonic Sensor | 1 | 100 |
| **Total** |  | **4275** |

# Conclusion:

In this Arduino based project we will implement Car Safety System. Our system will reduce the occurrence of car accidents and its consequences. Road accidents are increasing day by day in recent times. Our advanced system will ensure the safety of the passengers. Our users can make their journey safe & secure by using this system.