

AUTOMOBILE PRUDENT SYSTEM

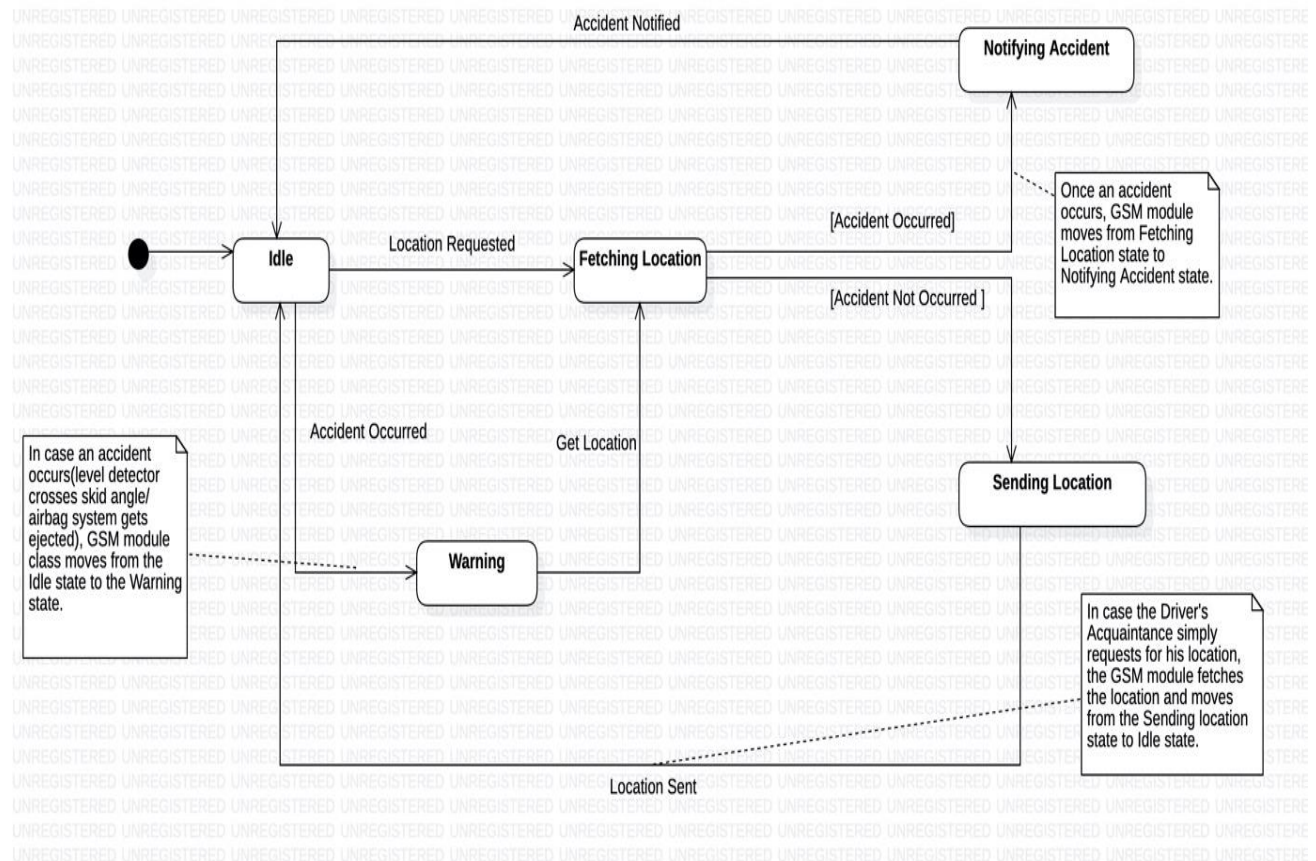
STATE MODELLING

GOKUL.S 2018103026

SRIHARIS 2018103601

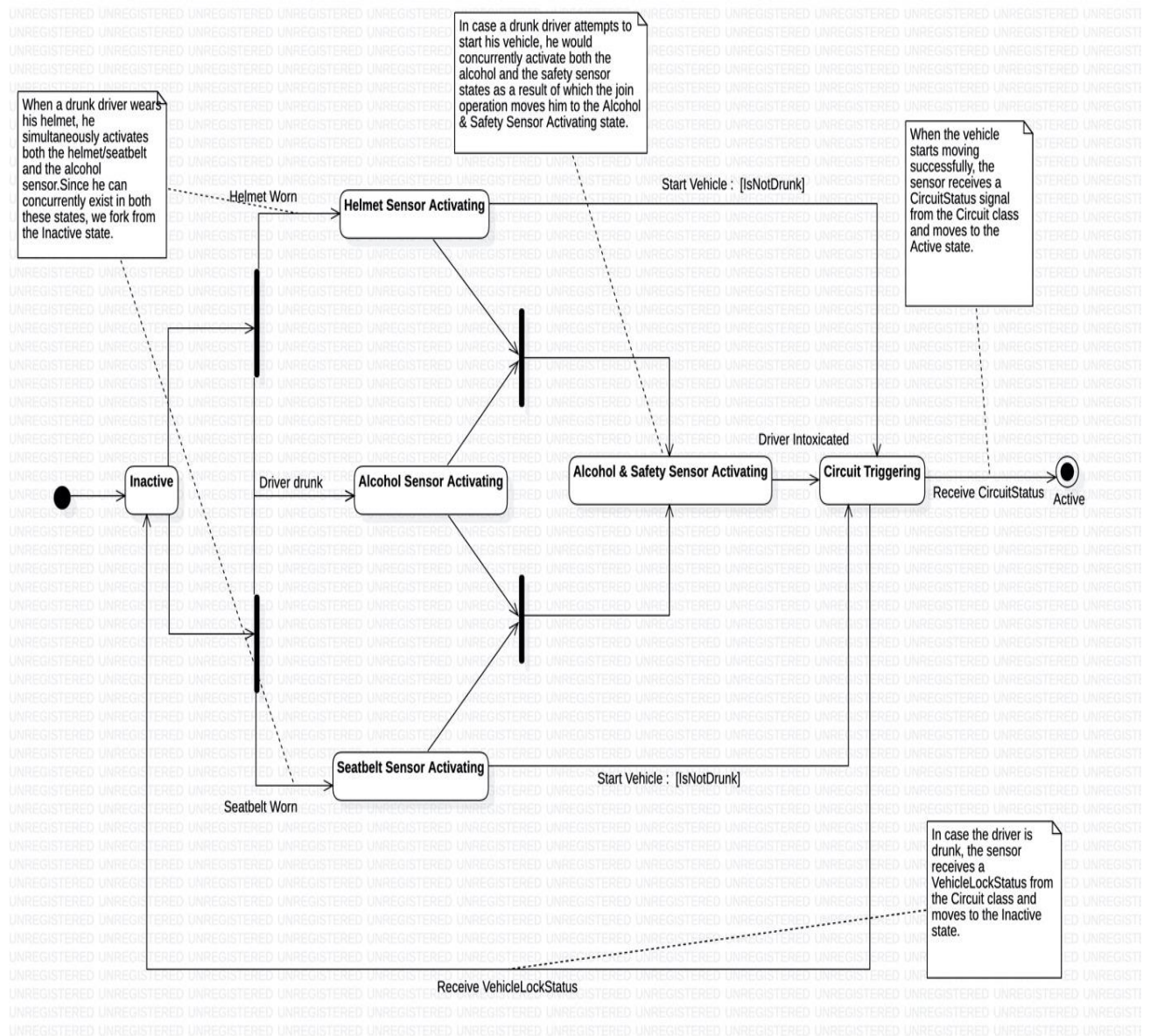
STATE DIAGRAM 1:

- **Associated Class:** GSM Module
- **Scenario:**
 - Driver undergoes an accident.
 - GSM Module moves from **idle** to **warning** state.
 - It fetches the location and moves to the **fetching location** state, post which it makes a transition to the **notifying accident** state.
 - It is in this state where it notifies acquaintances about the accident.
 - Once the GSM Module receives an acknowledgement that the notification has been read, it moves back to the **idle** state.



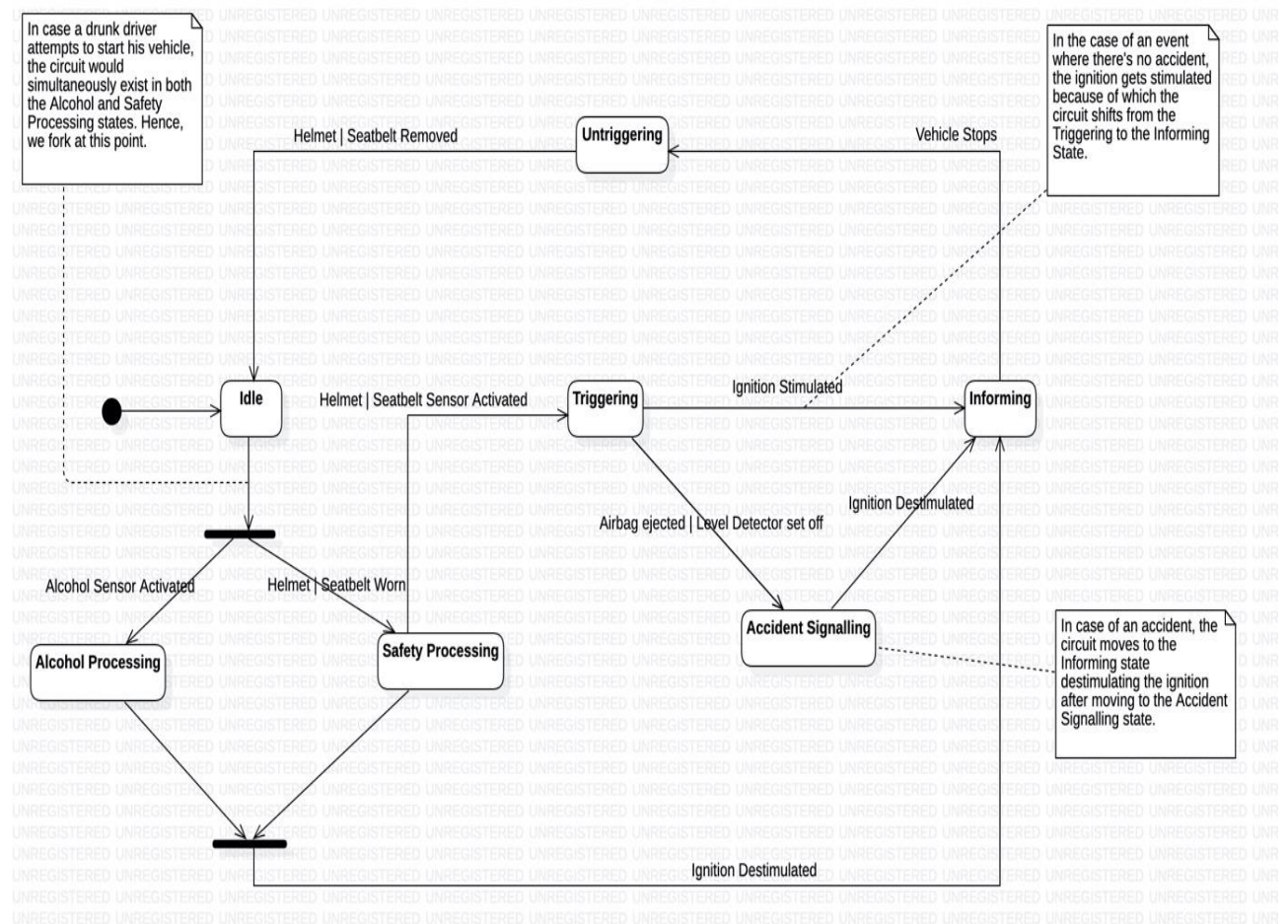
STATE DIAGRAM 2:

- **Associated Class:** Sensor (Helmet Sensor, Seatbelt Sensor, Alcohol Sensor)
- **Scenario:**
 - Driver gets intoxicated due to consumption of alcohol.
 - He wears his seatbelt and attempts to start his car.
 - In this case both the helmet and alcohol sensors get activated because of which sensor forks to these states to concurrently exist in them from the **inactive** state.
 - Due to the join operation, the sensor further shifts to the **alcohol and safety sensor activating** state, post which it transits to the **circuit triggering** state since he is intoxicated.
 - Upon receiving the VehicleLockStatus from the circuit class, sensor moves to the **inactive** state.
 - The vehicle is currently locked and the driver is unable to start it.



STATE DIAGRAM 3:

- **Associated Class:** Circuit
- **Scenario:**
 - Driver wears his helmet.
 - Circuit moves from **idle** to **safety processing** state.
 - Upon the activation of the helmet sensor, it further shifts to the **triggering** state.
 - The driver then under goes an accident.
 - Now the circuit moves to the **informing** state, destimulating the ignition after moving to the **Accident Signalling** state.
 - As the vehicle stops, it moves to the **Untriggering** state.
 - Upon the deactivation of the helmet sensor by the removal of the helmet, it moves back to the **idle** state.



STATE DIAGRAM 4:

- **Associated Class:** Ignition
- **Scenario:**
 - Driver attempts to start his vehicle.
 - Upon successfully receiving the Circuit signal from the circuit class, the ignition moves from the **idle** to the **Calculating state**.
 - Since the driver isn't drunk and the situation is normal, the ignition receives a signal of frequency 1400MHz from the circuit.
 - As this is greater than the threshold of 1200MHz, a change event gets triggered due to which it moves to the **Stimulating** state.
 - Driver drives successfully and reaches the destination.
 - Upon turning off his vehicle using the keys, the ignition receives a signal of frequency 900MHz from the circuit class (signifying a normal stop).
 - This makes it move back to the **idle** state.

