

PSUEDOCODE:

BEGIN

INITIALIZE libraries and constants

SET WiFi credentials

SET Telegram credentials

INITIALIZE hardware components

SET LED pin, buzzer pin, ultrasonic sensor pins, servo pin

SET LCD display

SET MPU6050 sensor

INITIALIZE servo

SETUP function

BEGIN serial communication

INITIALIZE I2C communication for MPU6050

IF MPU6050 fails to initialize THEN

PRINT error message

HALT

END IF

INITIALIZE WiFi connection

WHILE WiFi is not connected

PRINT dots

DELAY

END WHILE

PRINT WiFi connected message

TEST connection to Telegram server

IF connection to Telegram server fails THEN

PRINT error message

RETURN

ELSE

PRINT connection successful

END IF

TEST sending initial message via Telegram

IF message sent THEN

PRINT success message

ELSE

PRINT failure message

END IF

END SETUP

FUNCTION moveToAngle(angle)

MOVE servo to specified angle

DELAY

END FUNCTION

FUNCTION readUltrasonicDistance(triggerPin, echoPin)

SEND trigger pulse

READ echo pulse duration

CALCULATE distance from duration

RETURN distance

END FUNCTION

LOOP function

READ acceleration, gyroscope, and temperature data from MPU6050

MOVE servo to initial position (0 degrees)

PRINT sensor data to serial monitor

CALCULATE acceleration magnitude

PRINT acceleration magnitude

READ distance from ultrasonic sensor

PRINT distance to serial monitor

DISPLAY distance on LCD

IF distance between 20 and 30 cm THEN

DISPLAY "Vehicle Ahead" on LCD

ACTIVATE buzzer in a pattern

CLEAR LCD

END IF

IF distance between 10 and 20 cm THEN

DISPLAY "Alert" and "Applying Brakes" on LCD

MOVE servo to braking position (180 degrees)

ACTIVATE buzzer in a pattern

CLEAR LCD

END IF

IF acceleration magnitude indicates sudden jerk THEN

IF distance less than 10 cm THEN

DISPLAY "Accident Alert" and "Sending SOS" on LCD

MOVE servo to braking position (180 degrees)

ACTIVATE LED and buzzer for a duration

SEND accident alert message via Telegram

IF message sent THEN

PRINT success message

ELSE

PRINT failure message

END IF

END IF

END IF

BLINK LED to indicate system is running

END LOOP

END