IoT Based Real Time Monitoring for Secure Operation for EV

SAMPLE CODING

Code for Real-Time Monitoring and Cloud Data Upload in

Electric Vehicle System

```
#include <xc.h>

#define _XTAL_FREQ 8000000

#define motor_pin PORTBbits.RB0

#define water_sensor_pin PORTAbits.RA0

#define smoke_sensor_pin PORTAbits.RA1

#define temp_sensor_pin 0

void UART_Init();

void UART_SendString(const char *data);

void ADC_Init();

unsigned int ADC_Read(unsigned char channel);

void LCD_Init();

void LCD_Display(char *data);

void main() {

    TRISA = 0xFF;

    TRISB = 0x00;

    ADC_Init();

    UART_Init();

    LCD_Init();

        while(1) {

        unsigned int temp_value = ADC_Read(temp_sensor_pin);
```

```
    unsigned int water_status = water_sensor_pin;

    unsigned int smoke_status = smoke_sensor_pin;


    LCD_Display("Temp:");

    LCD_Display(temp_value);


    UART_SendString("Temp=");

    UART_SendString(temp_value);

    UART_SendString("&Water=");

    UART_SendString(water_status);

    UART_SendString("&Smoke=");

    UART_SendString(smoke_status);

    UART_SendString("\n");


    if(smoke_status == 1 || temp_value > 50) {

        motor_pin = 0;

    } else {

        motor_pin = 1;

    }


    __delay_ms(5000);

  }

}
```

Web Application:

1. index.js

```php
<?php
```

```php
$conn = new mysqli("localhost", "root", "", "ev_monitoring");

$result = $conn->query("SELECT * FROM DataLogs ORDER BY LogID DESC");
?>
<!DOCTYPE html>
<html>
<head>
<title>EV Monitoring Logs</title>
<style>
table { width: 100%; border-collapse: collapse; }
th, td { border: 1px solid #aaa; padding: 8px; text-align: center; }
th { background: #ddd; }
</style>
</head>
<body>
<h2>DataLogs</h2>
<table>
<tr><th>LogID</th><th>DATA</th><th>LogDate</th><th>LogTime</th></tr>
<?php while($row = $result->fetch_assoc()): ?>
<tr>
<td><?= $row['LogID'] ?></td>
<td><?= $row['DATA'] ?></td>
<td><?= $row['LogDate'] ?></td>
<td><?= $row['LogTime'] ?></td>
</tr>
<?php endwhile; ?>
</table>
</body>
</html>
```

2. insert.php (IoT Device Sends Data)

```php
<?php
$conn = new mysqli("localhost", "root", "", "ev_monitoring");

$data = $_GET['data'];
$date = date('Y-m-d');
$time = date('H:i:s');

$conn->query("INSERT INTO DataLogs (DATA, LogDate, LogTime) VALUES ('$data', '$date', '$time')");
echo "Logged";
?>
```