SMART ELECTRIC VEHICLE

Introduction

As a green travel tool driven by electricity, EV have made breakthroughs in related technologies due to the economy and technology's rapid development. The gradual popularization of domestic EVs has also created new opportunities for the automotive and manufacturing industries. The production and promotion of EVs and related charging facilities will become future development focus of these industries As the rapid expansion of EVs has reduced fossil fuel consumption and carbon dioxide emissions and has also placed a significant burden on the power grid,

In the face of rising environmental concerns and the need for sustainable transportation solutions, the development of Smart Electric Vehicles (SEVs) has gained significant momentum. This proposed Ph.D. research aims to revolutionize electric vehicle technology by introducing an advanced SEV system. This system will be equipped with an AC motor, battery power, auto obstacle avoidance, and emergency auto-braking capabilities. The SEV will achieve these features through the integration of cutting-edge technology, including ultrasonic sensors, Arduino microcontroller, PIR sensor, Motor Driver Module, and Bluetooth Module.

Electric vehicles have emerged as a promising alternative to traditional internal combustion engine vehicles. These vehicles offer benefits such as zero emissions, reduced energy consumption, and improved efficiency. However, to ensure the widespread adoption of electric vehicles, addressing concerns related to safety and convenience is essential. This research proposal focuses on enhancing the safety and usability of electric vehicles through innovative technological advancements.

Objectives :

- **AC Motor Integration**
- **Battery Powered Operation**
- **Auto Obstacle Avoid an**
- **Emergency auto Braking**
- **Bluetooth Connectivity**

Methodology:

The research will involve extensive hardware integration and software development. The AC motor will be integrated into the SEV chassis, and the battery system will be optimized to ensure power efficiency and extended range. Ultrasonic sensors and PIR sensors will be placed strategically to detect obstacles and pedestrians, respectively. The Arduino microcontroller will process the sensor data and control the vehicle's movements. The Motor Driver Module will be used to manage the AC motor, and the Bluetooth Module will facilitate wireless communications.