



# ENGINE SOUND SIMULATOR

The Go to solution for Electronic Vehicles

# THE PROBLEM

- At speeds less than 50km/hr, electric vehicles are very quiet in comparison with fuel/gas based vehicles due to absence of combustion engines
- The noise difference can be as high as 20dB<sup>[1]</sup>
- Pedestrians who are accustomed to a conventional fuel/gas based vehicle will be at high risk of being involved in accidents due to lack of an audible sound of the vehicle that could have alerted them
- Moreover, pedestrians who have a hearing or visual impairment are at even greater risk
- Numerous studies<sup>[2][3]</sup> have indicated that there has been a 35-40% increase in pedestrian accidents with electric vehicles as compared to their fuel/gas based counterparts

# OUR SOLUTION

Our Engine Sound Simulator is a versatile, customizable and integration ready solution, perfect for all electric vehicle manufacturers

- Engine Realism: The simulator provides intelligent sound manipulation depending upon whether the vehicle is starting, idling, revving or stopping
- Clear & Audible: With proper acoustic impedance matching, the engine sound generated by the simulator is clearly audible even in loud traffic
- Multiple Sounds: The simulator can store multiple sound clips providing the user to change them on demand via a Mobile App to keep things fresh
- Easy Integration: The simulator comes ready with compatible interfaces which can be easily integrated in existing system as well as a software utility for mass production
- Audio Compatibility: The simulator is compatible with multiple audio file formats, sampling rates and encoding types

# ADDED BENEFIT

- With the increase in competition across the rapidly growing market of electric vehicles, an engine sound simulator will be an added advantage
- With the added ability to customize the sound of the vehicle, the consumer will get an opportunity to further personalize their ride
- A unique sound from an electric vehicle can also be used to attract attention and facilitate direct marketing to customers at no added cost
- Early adopters can gain greater market share with the help of this major point of differentiation

# SOON A NECESSITY

- With numerous studies concluding the potential threat of silent electric vehicles to pedestrians, the government of India may soon get involved in formulating regulations to address these safety concerns, with signs of such measures already in discussion<sup>[4]</sup>
- The European Union have already adopted similar regulations<sup>[5]</sup> and so have United States<sup>[6]</sup> and Australia<sup>[7]</sup>
- Manufacturers who quickly adopt such systems in their development phase before such regulations are enforced will not only have a head start but also prevent themselves from going back to the drawing board to make room for such a solution. Furthermore, adding a sound generating system to vehicles already out in the market will be a major hassle and quite expensive

# SPECIFICATIONS

- Speaker Supported: Up to 100W
- Operating Voltage: 12V
- Processor: ARM Cortex M3
- Audio Format Supported: WAV, MP3, AAC
- Audio Storage Capacity: 8MB (Extendable)
- Wired Communication: RS232, RS485, CAN
- Wireless Communication: BLE, Wi-Fi