

“Challenges in Next-Generation Automobiles”

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Automobiles are a common sight for more than a century. Initially for the rich and affordable, now they are indispensable transport equipment, although some builds remain as luxury goods for the most affluent. Compared with other products and equipment which have gone through radical and disruptive changes, an automobile is still very much the same vehicle for the last 50 years, although there has been much better control, electronics, safety, fuel economy, comfort and various other factors. Recently, hybrid and electric automobiles are beginning to enter the consumer market. Wide-spread acceptance by users is yet to be fully established as the necessary infrastructure must be in place to allow pervasive use in the cities and outskirts.

An automobile can be considered an excellent representative example of the modules covered in mechanical engineering. When I used to lecture machine design to the undergraduate students, I always used an automobile to illustrate all the various topics such as shafts and couplings, bearings, gears, clutches and brakes, fluid transmission systems, belts and chain drives, cams, springs, fastening and joining, riveting, welding, etc. Other fields include dynamics and vibration, wind resistance and CFD analysis, acoustics, impact mechanics, material selec-

tion, thermal and fluid engineering, batteries, etc. An automobile is truly a fascinating piece of engineering marvel. Although automobile technologies are considered to be advanced and mature, the challenges we faced today are many: improved safety and protection, reduced emission and pollution, better handling and comfort, intelligent control and assistance to the driver, not to mention affordability and ease of maintenance. Automobiles are being produced at an alarmingly fast rate, their disposal, recycle and reuse after retirement are equally important. Many automobiles are being retired pre-maturely due to legislative requirements and laws in different countries, while some are being used for prolonged periods of time, often resulting in breakdowns and are unsafe for the driver as well as the other road users. Remanufacturing, reconditioning and various other means to restore the automobiles in a safe and working state have been studied extensively to reduce material waste and energy consumption. This new open access journal provides an excellent opportunity to address some of the above-mentioned issues. Even though there are several existing journals in this area, I feel that there are more scopes and submissions than the present journals can handle.

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