



TOKYO UNIVERSITY OF SCIENCE

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Expert Reviewer's Report (#2022-19)

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I am delighted to have the opportunity to contribute as a reviewer for the IEEE Milestone Program. Below, I provide the results of the review for Milestone-Proposal: "Toyota Prius, the world's first mass-produced hybrid vehicle".

1. Is suggested wording of the Plaque Citation accurate?

Yes, I agree that the following points, which will be included on the plaque, are accurate:

- ✓ In 1997, Toyota developed a mass-produced hybrid vehicle, the Toyota Prius.
- ✓ By recovering and reusing energy lost during deceleration, it achieved groundbreaking fuel efficiency.
- ✓ After the Prius, many hybrids vehicle were introduced and made significant contributions to reducing CO2 emissions from automobiles.

2. Is evidence presented in the proposal of sufficient substance and accuracy to support the Plaque Citation?

Yes. The following three points are adequately demonstrated in the proposal and accompanying materials:

- ✓ Toyota began selling the Prius in 1997.
- ✓ The uniqueness of the hybrid mechanism and the improvement in fuel efficiency
- ✓ At the time of release, the production scale was approximately 20,000 units per year, and there was subsequent expansion of hybrid vehicles by the company.

3. Does proposed milestone represent a significant technical achievement?

Yes. This proposal is significant for the following reasons:

- ✓ Toyota became the first in the world to mass-produce a hybrid vehicle that utilizes both an internal combustion engine and electric power as the driving force.
- ✓ The hybrid vehicle achieved fuel efficiency improvements that were not possible with conventional internal combustion engines.
- ✓ Following the Prius, many hybrid vehicles were introduced to the market. The technology developed, including batteries, motors, and inverters, has become the foundation for



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electric vehicles such as Battery Electric Vehicles (BEVs), Plug-in Hybrid Electric Vehicles (PHEVs), and Fuel Cell Electric Vehicles (FCEVs).

4. Were there similar or competing achievements? If so, have the proposers adequately described these and their relationship to the achievement being proposed?

Yes. After Toyota successfully mass-produced their unique series-parallel hybrid system, other manufacturers also introduced hybrid vehicles to the market using different systems. The differences between Toyota's hybrid technology and those of other companies, as well as the advantages of Toyota's hybrid technology, are clearly stated in this proposal.

With the introduction of the Prius, awareness of eco-friendly cars increased in the automotive industry, and fuel efficiency became an important criterion for users when choosing a vehicle. It is considered a historic achievement that has changed the landscape of the automotive industry.

Conclusion

As stated above, this achievement has had a significant impact on the automotive industry. Creating a hybrid vehicle that would be accepted in the market at that time was a project that was ahead of its time and required significant technological breakthroughs. I strongly recommend registering this proposal as an IEEE Milestone.

Sincerely yours,

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(IEEE Life Fellow, University of Tokyo Professor Emeritus,
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