

**Project 5/2008 – Development of Intelligent Electrical Vehicle**

Project Number	5/2008								
Project Title	Development of Intelligent Electrical Vehicle (EV)								
Principal Investigator (PI)	Professor. XU Yangsheng, Department of Mechanical and Automation Engineering of the Chinese University of Hong Kong								
Project summary	<p>To develop a new electric light bus, which can be an environment friendly tool for the public transportation. The vehicle will bear main features as:</p> <ol style="list-style-type: none"> <li>1) LiFePO<sub>4</sub> battery pack and its - modular battery management system;</li> <li>2) integrated electric drive systems; The development of this EV will make significant impact to both environment and economics.</li> </ol> <p>It will not only cut off the on-road emission and to improve that air quality, relieve the problem of climate change, and reduce noise pollution, but it will also relieve the dependence on the non-renewable energy of this modern society and save energy for the later generations. Moreover, it will also enhance the technological position of Hong Kong in the world and boom the industry.</p>								
Project Duration	24 months								
Proposed Budget	<p>The total budget is \$12,000,000, comprising the following items:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>Manpower (1 research associate, 4 research assistants and 2 technicians)</td> <td style="text-align: right;">\$3,000,000</td> </tr> <tr> <td>Equipment</td> <td style="text-align: right;">\$2,000,000</td> </tr> <tr> <td>Other Direct Costs (workshops/ testing/ research trips/ patent fee)</td> <td style="text-align: right;">\$1,000,000</td> </tr> <tr> <td>Cooperation Cost (manufacturing and testing of vehicle by Beijing Institute of Technology)</td> <td style="text-align: right;">\$6,000,000</td> </tr> </table>	Manpower (1 research associate, 4 research assistants and 2 technicians)	\$3,000,000	Equipment	\$2,000,000	Other Direct Costs (workshops/ testing/ research trips/ patent fee)	\$1,000,000	Cooperation Cost (manufacturing and testing of vehicle by Beijing Institute of Technology)	\$6,000,000
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Assessments/Remarks	EPD considers the project worthy of support and the project deliverables carry practical values, which can help								

	<p>improve the performance of electric light buses and encourage more people to use them in Hong Kong. In 2001, the Report of Alternative Fuel Light Bus Trial was published which figured out some disadvantages of the electric light bus. The PI's proposal to develop EV with Li-ion battery and its anti-noise battery management system and CAN-bus based diagnosis is expected to solve part of the shortcomings found in the past electric PLB in 2001.</p> <p>However, both External Assessor 1 and 2 do not support the project. They suggest that the project should be supported from the industry or involving manufacturers.</p> <p>External Assessor 1 considers the technology described is a common and typical method for EV development which has not involved new element. The project should be developed and the proposal EV is good to Hong Kong. However, most of the work would be done overseas, rather than locally. It is not worthy to be supported by ECF.</p> <p>External Assessor 2 claims that the real developments should be the battery controller and the motor, instead of the vehicle. This project does not address how and why this development will lead to wider usage of electric minibuses in Hong Kong.</p> <p>Both external assessors point out that there were local studies developing EV for smaller cars for 2 to 4 passengers. The PI responded that his proposal to develop electric light bus will be a significant step further to the effort of emission reduction by public transportation.</p> <p>Members are invited to advise whether the application for ECF should be supported and if supported, the exact amount of fund to be granted.</p>
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