Abstract

Development of Electric Three-wheeler with a Two-wheel Independent Driving System and Yaw Stability Control for Urban Public Mobility and Goods Transportation

Source of Fund	Program Management Unit – Competitiveness (PMU-C) and Udornihai-UD-Group Co., Ltd.	
Collaborative agency	Udornihai-UD-Group Co., Ltd.	
Duration	1 Year 11 months (16 September 2022 – 15 August 2024)	

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Transportation sector is one of the largest contributors of greenhouse gas emissions and air pollution to environment. A shift from Internal-combustion-engine vehicles to electric vehicles will reduce greenhouse gas emission and fossil fuel consumption. In this research, three-wheelers for urban and economics zone uses will be developed based on three main concepts including electrification, improved passive safety and enhanced vehicle stability. Two electric three-wheeler prototypes in this project will be developed based on two main applications including passenger carrier and urban transportation. The newly developed three-wheelers are powered by two rear in-wheel motors which are capable of increased yaw stability during cornering via independent torque distribution. The structural design concept used is based on lightweight design and tilting structure for improving vehicle stability.