

ABSTRACT

In Indonesian automotive industry many cars without exhaust gas emissions have been marketed, that is the electric car. However, many people have not driven it yet. One of reasons is the short distance that an electric car can travel in one charge, and the unavailability of charging stations in Indonesia. In addition the power that produced by an electric motor has not been able to compete the power that produced a combustion engine.

Power efficiency was required to extend the mileage of the electric car, thus, automatic transmission system was selected with the continuously variable transmission method. It was expected by using this method, the power required by an electric car could be reduced, the distance traveled would increase and the power produced by an electric car could compensate for the power of a fueled car. In this method was used primary pulley that its moving would be controlled by the microcontroller, with the actuator was motor stepper and secondary puller that its moving controlled by spring. Controlling of primary pulley by the microcontroller is based on motor rotation readings. Parameters of success of this study was it could increase the mileage, the acceleration, and speed on electric cars.

The results obtained in this examination were, the efficiency values of CVT $\eta=61,58\%$, but for values of speed and acceleration of CVT and fix gear were as follow, $v_{CVT}=23,17\text{Km/h}$, $a_{CVT}=0,21\text{m/s}^2$ and $v_{fix\ gear}=39,09\text{Km/h}$, $a_{fix\ gear}=0.76\text{m/s}^2$. The result that obtained by CVT was more superior in efficiency or mileage but for acceleration and speed, fix gear was more superior than CVT.

Keyword : *continuously variable transmission, mobil listrik, primary pulley, secondary pulley, stepper motor*