Faculty of Engineering
Tokushima University

Development of an Electric Skateboard with Load Measuring System

Assistant Professor Motomichi Sonobe

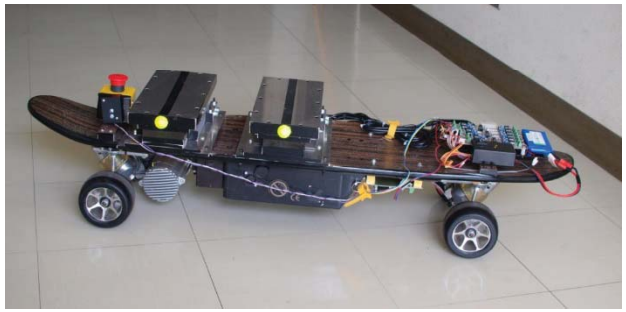

Fig. 1 Electric skateboard with load measuring device

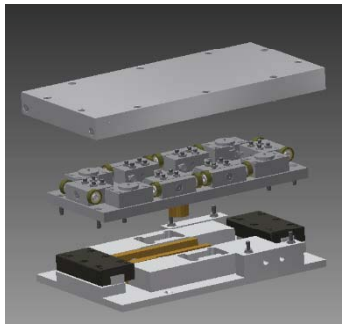

図2.Load measuring device

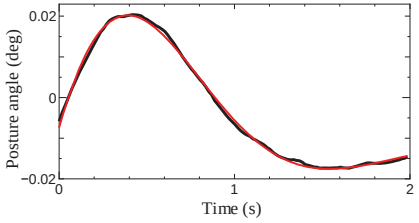

Fig. 3 Experimental result of impulse response test

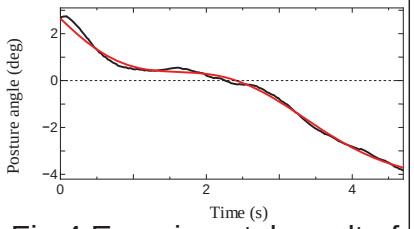

Fig.4 Experimental result of step response test

Content:

In recent years, electric skateboards have attracted much attention as a low-cost and compact mobility vehicle. But to ride the stand-up vehicle is difficult. In this study, we try to develop a electric skateboard shown in Fig. 1 to keep the driver's upright standing easily. We estimate driver's posture based on center of mass measured by load measuring device in Fig. 2.

Because the posture control of upright standing affects the stability of the electric skateboard system, to build the musculo-skeletal model is very important in this study, Especially, we focus on time delay in posture control which is generally estimated around 0.2 sec. We assume that the delay time is determined to curb the energy consumption. Delay time is estimated by the impulse response test and the step response test whose result are shown in Fig.3 and Fig.4 respectively. We will attempt to build the simple musculo-skeletal model for controlling skateboard and to identify the system parameters easily by establishing a way of estimating of delay time.

Keywords：Motion control, Biomechanics,Time delay

E-mail: sonobe@tokushima-u.ac.jp

Tel. +81-88-656-7382

Fax: +81-88-656-9082

HP : http://dynamic1.me.tokushima-u.ac.jp/