



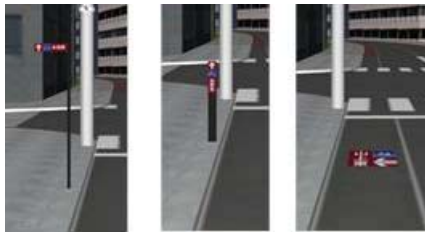
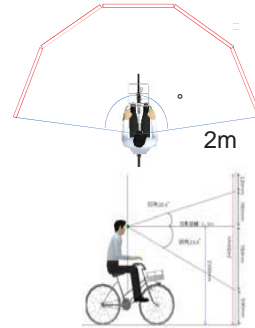
Faculty of Engineering
Tokushima University

Analysis Systems for Bicycle Behavior and Safety Facilities

Professor Hideo Yamanaka



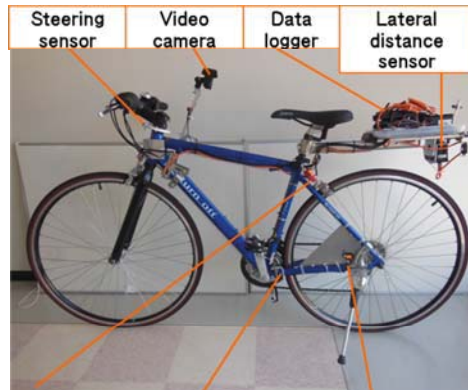
Wide vision bicycle simulator



Road signs and markings



Repeated coloured sign syste,



Probe Bicycle

street	~105°	~75°	~45°	±15°	~45°	~75°	~105°
old ~75°	0%	0%	0%	0%	0%	0%	0%
old ~45°	0%	3%	11%	11%	3%	0%	0%
old ±15°	0%	2%	13%	22%	7%	1%	0%
old ~45°	1%	2%	7%	12%	2%	1%	0%
old ~75°	0%	0%	0%	1%	0%	0%	0%
young ~75°	0%	0%	0%	0%	0%	0%	0%
young ~45°	1%	5%	22%	30%	12%	3%	1%
young ±15°	1%	2%	4%	8%	4%	0%	0%
young ~45°	0%	0%	2%	2%	1%	0%	0%
young ~75°	0%	0%	0%	0%	0%	0%	0%

Example of Gaze fixation by bicycle users

Content:

Japan is one of the top bicycle friendly countries as the transport mode for urban areas. It is not so safe for bicycles that use sidewalks on both directions. Studies on bicycles are not enough comparing with that on motor vehicles. Our study aims to make clear the effects by road design, signs, warning system for bicycle safety by developing the following methods for analyzing their behavior.

1) Bicycle simulator with wide visions : We analyze effects by warning system and road markings in order to decrease bicycle intersection accidents. Cooperated bicycling and driving simulator system is under developing for the analysis of conflicts in junctions

2) Probe bicycle: It can measure speed, braking, steering, vibration, and overtaking speed and lateral distance of vehicle aside automatically in order to evaluate level of service for bicycles.

3) Eye movement analysis system : By using Eye-mark recorder (EMR-9) which can measure eye movement during cycling, we analyze the effects on gaze behavior by the factors such as old people, junctions, bus stop, night time and so on.

Keywords : Road design, Bicycle facilities, Traffic safety

E-mail: yamanaka.hideo@tokushima-u.ac.jp

Tel: +81-88-656-7350

Fax: +81-88-656-7579

