Feedback Report Generator for Drivers using Biological Sensors

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FORUM8
8th CPWC

Background

Traffic accidents in Japan have been decreasing, but the accidents by aged drivers (more than 65 years old) are increasing according to **the report of Tokyo Metropolitan Police Department**.
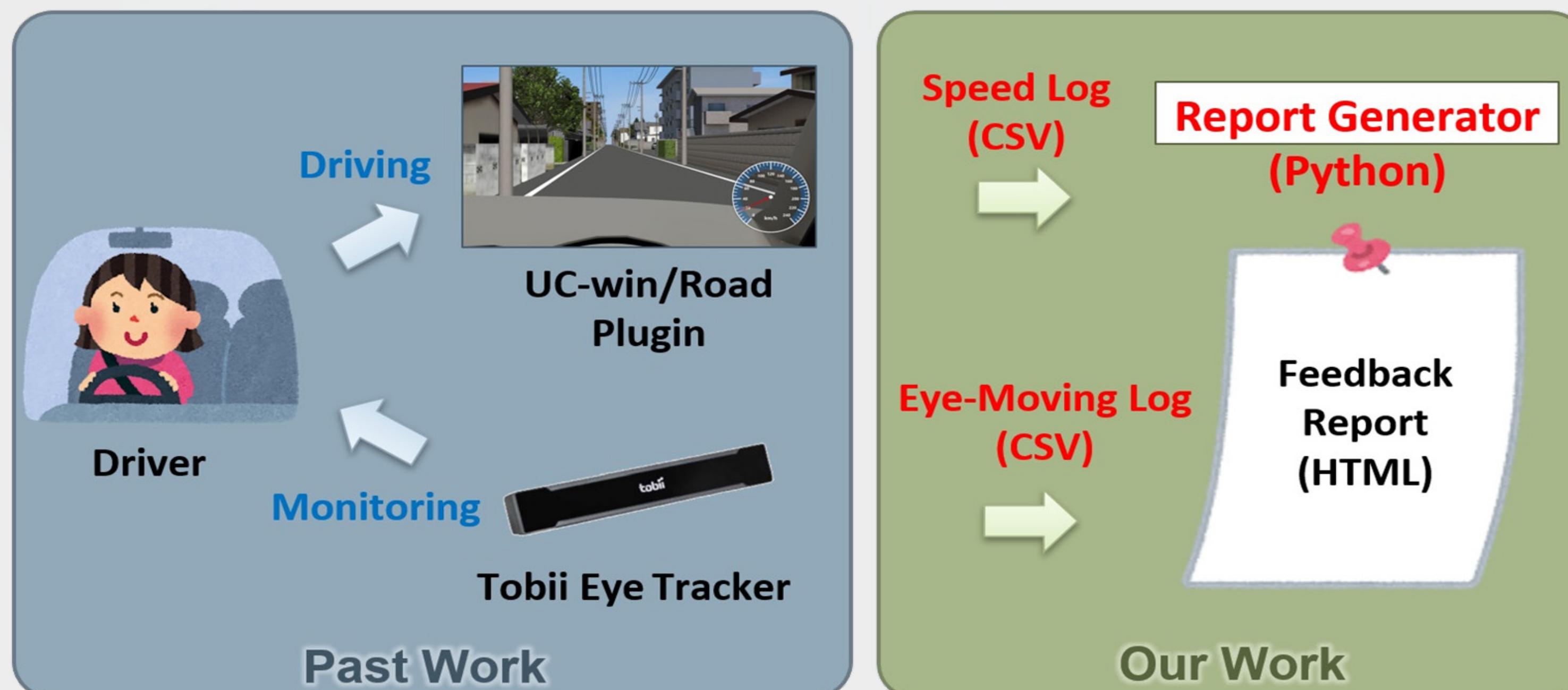
The main cause of the accidents by aged drivers is **a lack of self-awareness** about their physical inabilities. Therefore, we developed **a generator of feedback report** to awaken their actual driving abilities.
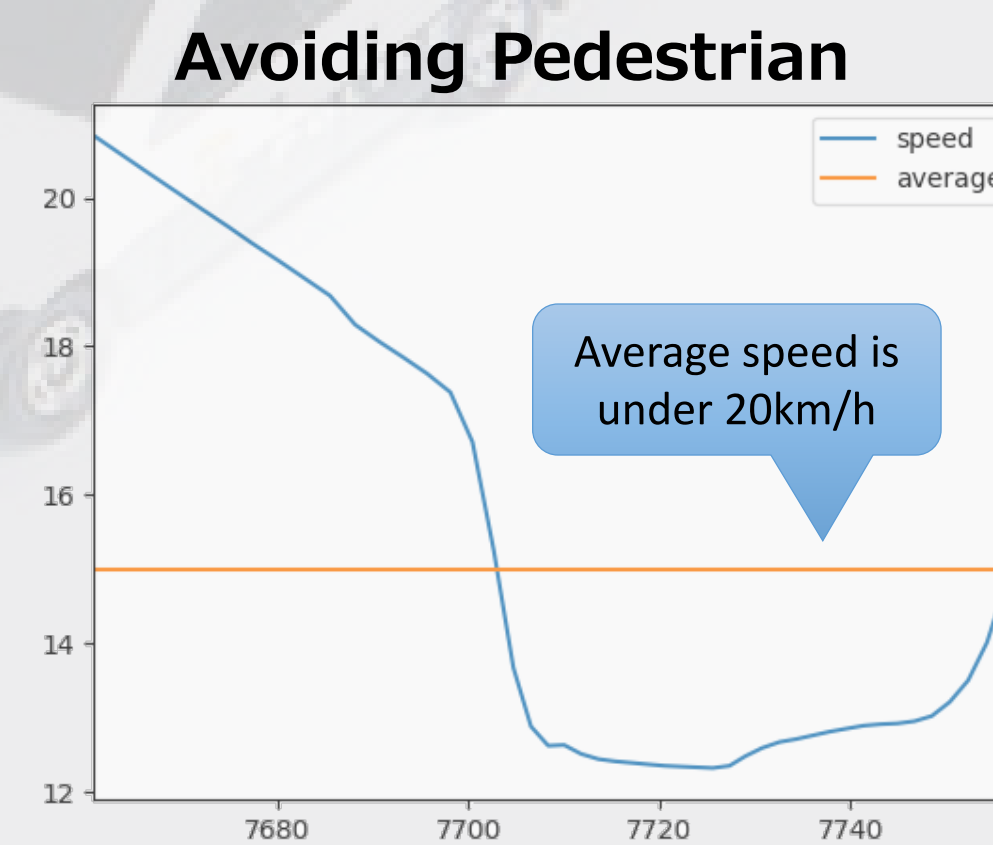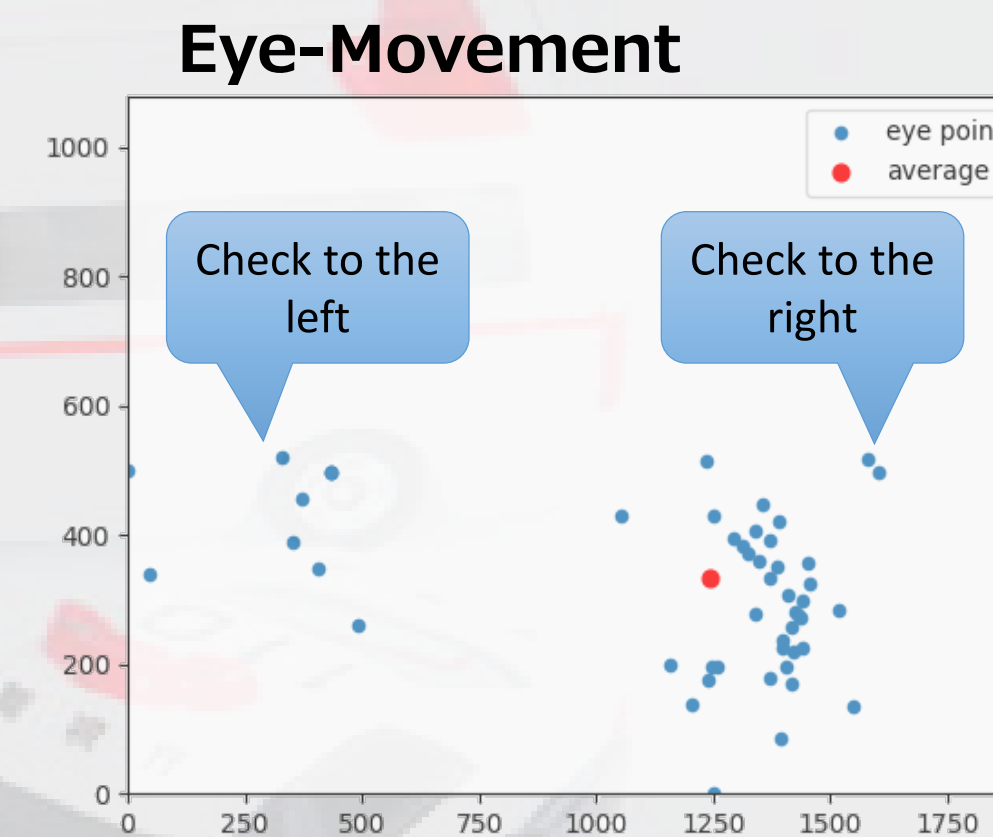
Features of Our Report Generator

▶ Generator considers your driving logs: **eye movement** and **velocity** of the vehicle.

▶ Feedback report is generated in a **HTML format** file.

▶ Feedback report checks **whether you looked at both sides or not**.

▶ Feedback report checks **whether you kept slow speed or made pauses** at intersections.

▶ Your driving skill is evaluated and **ranked A, B, or C**.

Framework

Past Work

Driver → Driving → UC-win/Road Plugin

Monitoring ← Tobii Eye Tracker

Our Work

Speed Log (CSV) →

Eye-Moving Log (CSV) →

Report Generator (Python)

Feedback Report (HTML)

Feedback Reports

Eye-Movement

eye point
average

Check to the left

Check to the right

Avoiding Pedestrian

speed
average

Average speed is under 20km/h

Pausing at Intersection

speed
average

Minimum speed is 0 km/h

Generated HTML report

Your Driving Feedback Report

Log File: data/imai-log1.csv
- 1st Intersection
- Obstacle: Truck
- 2nd Intersection
- 3rd Intersection with Stop Sign
- 4th Intersection
- Obstacle: Pedestrian
- 5th Intersection with Stop Sign
- Your Evaluation

1st Intersection

Between from X=6914[m] to X=7014[m]
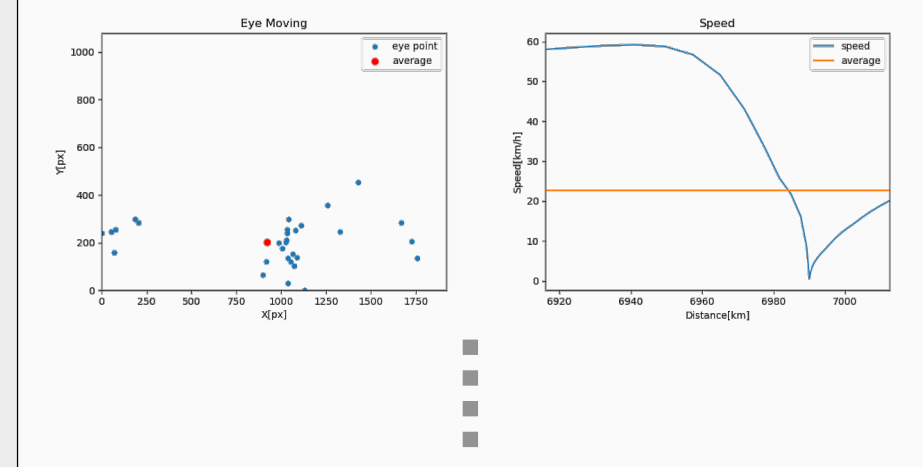
Your Eye-Moving

Average	X:923.06[px] Y:202.47[px]
Standard Deviation	X:495.18[px] Y:95.31[px]
Maximum	X:1759.0[px] Y:453.0[px]
Minimum	X:0.0[px] Y:0.0[px]

Comment
You correctly looked both sides.

Your Speed

Average	22.58[km/h]
Standard Deviation	20.88[km/h]
Maximum	59.16[km/h]
Minimum	0.56[km/h]

Comment
You should have reduced the speed slightly.

Eye Moving / Speed

Your Evaluation

Eye-Moving Score: 40 / 40

Speed Score: 54 / 60

Total Score: 94 / 100

Your Driving **Evaluation is Rank A**

Conclusions and Future Works

Our feedback report enables you to look back your driving operations objectively without requiring the help of a driving school instructor.

✓ Other driving features (e.g., brake pedal) should be considered into our report.

✓ Implementation of automatic scene detectors which detect dangerous scene to improve in driving.

✓ We hope to introduce our system into driving schools.