

Pavement Evaluation by Smartphone

Japan Quality

BumpRecorder



Easy to evaluate network level road conditions!

BumpRecorder is only using smartphone to evaluate road roughness, but NOT require special equipment. You just drive a passenger car with smartphone, BumpRecorder will record vehicle vibration. And once uploading a recorded data to BumpRecorder Web server, road roughness of level 2 IRI and original bump index will calculate in 5-10 minutes, and it will be able to mapping on web map window.

It is convenience and it has good reliability!

BumpRecorder NOT require calibration driving before measurement driving. The vehicle vibration specification will be analyzed automatically by using recorded acceleration data, and the unsprung elevation that is the longitudinal road profile will be calculate. So, it can calculate class 2 IRI. This value is stable even if vehicle type and driving speed are different.

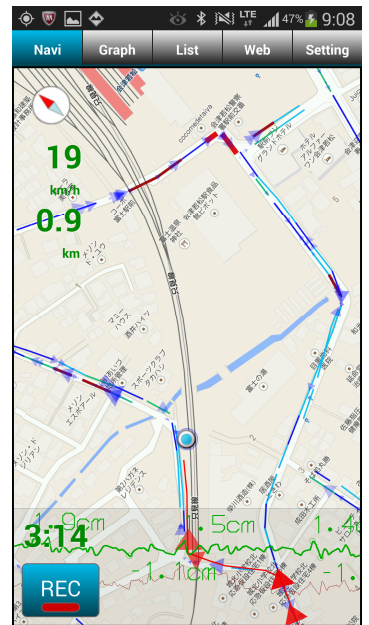
Worry about service fee? We are reasonable!

BumpRecorder App for Android smartphone is free to download from Google Play. And the data analyzing fee is fix amount for management area. In same area, measurement distance is unlimited! Roughness can be measured every day in fixed budget!

BumpRecorder App is Free!

This application can be downloaded from Google Play. It is found by keyword "**BumpRecorder**".

<https://play.google.com/store/apps/details?id=jp.trafficazard.BumpRecorder>



System Requirements

OS : Android 2.3 or higher Sensors : GPS, Accelerometer*

* Sampling cycle : minimum 50Hz, recommend over 100Hz.

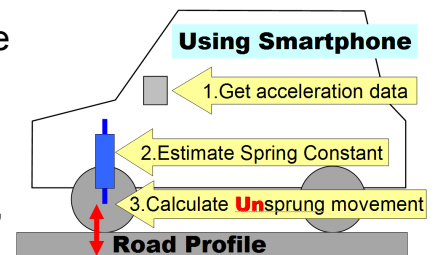
The sampling cycle can be checked on the [Graph] tab of the app. Or please visit following URL of BumpRecorder Website. For many types of smartphone, sampling cycle can be checked.

<http://map.bumprecorder.com/pages/devicelist>

Technology

Previous response type roughness meter is easily influenced from vehicle type and driving speed. So many applications are requiring calibration driving before measurement driving.

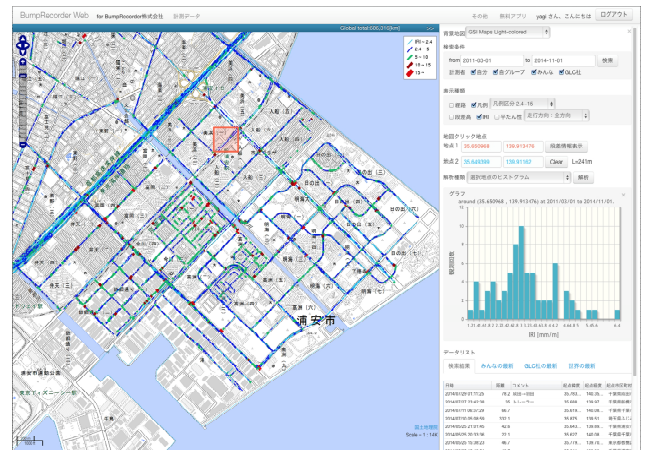
BumpRecorder is NOT requiring calibration driving. Self calibration will be done automatically under measurement driving. At first, vehicle spring constant is estimated, and next, unsprung elevation that is longitudinal road profile is calculated, then class 2 IRI is calculated.



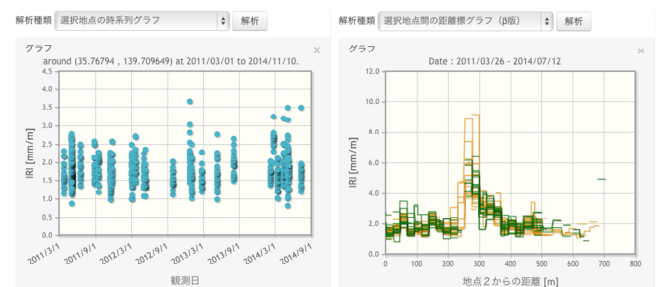
Analyzing Service : BumpRecorder Web

Recorded acceleration data is analyzed at BumpRecorder Web server. After upload, the data is calculated in 5-10 minutes. The result is drawn on the web map.

On this map, histogram, time series, and distance base graph can be drawn for selecting area and road.



Web Map View with Histogram



Time Series

Distance Base

Location Service

Vehicle Location Services option for bus, taxi, snowplow, etc., can be select. GPS data is shared at real time and mapping on the web map. And vehicle vibration data is recorded and analyzed road roughness at same time.

BumpRecorder can provide multiple service at same time in one smartphone.

Price

For 1,000km : 20,000 US\$/year

Measurement is unlimited for same 1,000km area.

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