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Signed

Dated 17th





Patents Form 1

Patents Act 1977 (Rule 12)

Request for grant of a patent

Concept House
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Application number GB 1101259.8

1. Your reference	P26650GB/SSA/KE		
2. Full name, address and postcode of the applicant or of each applicant	Wright, Andrew William Cedar Springs Waverley Drive Virginia Water GU25 4PZ Surrey United Kingdom		
Patents ADP number (if you know it)			
3. Title of the invention	Improvements Relating to Vehicle Recording Systems		
4. Name of your agent (if you have one) "Address for service" to which all correspondence should be sent. This may be in the European Economic area or Channel Islands (see warning note below) (including the postcode)	Keltie Keltie Fleet Place House 2 Fleet Place London EC4M 7ET United Kingdom		
Patents ADP number (if you know it) 09540048001			
5. Priority declaration: Are you claiming priority from one or more earlier-filed patent applications? If so, please give details of the application(s)			
Country	Application number	Date of filing	Date available on PDAS
6. Divisionals etc: Is this application a divisional application, or being made following resolution of an entitlement dispute about an earlier application. If so, please give the application number and filing date of the earlier application		Number of earlier UK application	Date of filing (day / month / year)
7. Inventorship: (Inventors must be individuals not companies)			
Are all the applicants named above also inventors?	Yes		
If yes, are there any other inventors?	No		
8. Are you paying the application fee with this form?	No		

Patents Form 1

9. Accompanying documents: please enter the number of pages of each item accompanying this form.

Continuation sheets of this form

Description: **10**

Claim(s): **n/a**

Abstract: **n/a**

Drawing(s): **n/a**

If you are not filing a description, please give details of the previous application you are going to rely upon

Country	Application number	Date of filing	Date available on PDAS
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10. If you are also filing any of the following, state how many against each item.

Priority documents: **0**

Statement of inventorship and right to grant of a patent
(Patents Form 7): **0**

Request for search (Patents Form 9A): **0**

Request for a substantive examination (Patents Form 10): **0**

Any other documents (please specify):

11. I/We request the grant of a patent on the basis of this application.

Signature: **Subject: GB, Keltie, K. Elkiner 18943;
Issuer: , European Patent Office, European
Patent Office CA**

Date: **25 Jan 2011**

12. Name, e-mail address, telephone, fax and/or mobile number, if any, of a contact point for the applicant

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After an application for a patent has been filed, the Comptroller will consider whether publication or communication of the invention should be prohibited or restricted under section 22 of the Patents Act 1977. You will be informed if it is necessary to prohibit or restrict your invention in this way. Furthermore, if you are resident in the United Kingdom and your application contains information which relates to military technology, or would be prejudicial to national security or the safety of the public, section 23 of the Patents Act 1977 prohibits you from applying for a patent abroad without first getting written permission from the Office unless an application has been filed at least 6 weeks beforehand in the United Kingdom for a patent for the same invention and either no direction prohibiting publication or communication has been given, or any such direction has been revoked. Until such time or until the revocation of any direction, for any such application the address for service referred to at part 4 above must be in the United Kingdom.

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Witness Application

Notes of technical features from meeting of 20 January 2011 (Shakeel Ahmad, Kaya Elkiner, Gill Switalski and Andy Wright).

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'Witness' is an application running on the mobile telephone of a driver. In use, the mobile device is mounted adjacent the vehicle windscreen so that a camera on the mobile telephone can see the road ahead.

- 10 The application interfaces with the hardware on the telephone to provide a device that documents the events surrounding an incident involving the vehicle such as a crash.

- 15 It will be appreciated that a more sophisticated telephone (e.g. a smart-phone) has a richer sensor set with which to record data and determine the occurrence of an incident. However, the Witness application is compatible with most mobile telephones provided that the sensor set is adequate.

Inputs

- 20 The Witness application can receive the following sensor/data inputs, as is typical for modern smart-phones:

- G-force / accelerometer
- Microphone (Audio)
- 25 • Camera (Picture/Video)
- GPS module (Speed, location, elevation etc)
- 3D compass (Orientation: Pitch, Roll and Yaw)
- Time/date

Recording / Storage

- The Witness application is arranged to record these sensor inputs continuously.
- The recording takes place at the highest update rate possible. However, to conserve storage space on the smart-phone, data is stored / overwritten according to a recording strategy, to attempt to preserve the most relevant data.
- 35 • The recording strategy could be set up as follows:

- The Witness application is arranged to register the occurrence of 'an event of significance' – for example, a potential vehicle crash.
 - All data recorded close to, and immediately after the time of the event of significance is preserved. Data recorded further away in time can be overwritten.
 - In effect, the data preservation/overwriting is such that the closer in time that recorded data is to the 'event of significance', the higher the quality of data. This can also be thought of the recorded data having a higher update rate closer to the event of significance.
- Data can also be compressed.
 - Data is also encrypted to preserve the authenticity of the data.

Data processing

As mentioned, the sensor data is used to determine the occurrence of 'an event of significance' such as a vehicle crash. Example ways this could be detected include one or a combination of the following inputs:

- A change in pitch + sharp deceleration (braking heavily / impact)
- A change in yaw at a given speed (swerve/skid)
- A roll (vehicle overturned)
- The sound of:
 - Tyre squeal
 - The crumple zone being crushed
 - Airbags deploying
 - Breaking glass
 - Impact (thud) with the vehicle chassis
 - Passengers shouting/screaming
- GPS – zero velocity for a predetermined period (vehicle not moving anymore)

Benchmarking

It will be appreciated that different sensor types, phones, mounting positions, cars, drivers and road conditions may generate differing outputs for driving behaviour that is 'safe'. To account for this, the Witness application may have the following functionality:

- During a 'training mode' (e.g. first week of enabling the Witness application) the input from the sensors are used to build up a 'benchmark' for a particular driver's typical driving conditions.
 - Assuming an accident does not occur during this training mode, the benchmark data can be subsequently used to assess the occurrence of an event of significance.
- There is an option to notify the Witness application of a change in parameters (e.g. different driver, driving off-road etc). Thus a number of 'profiles' may be set up. Each profile may require an independent training mode period.
- If the Witness program incorrectly detects that an incident of significance has occurred, it can receive feedback from the user to modify its sensitivities. E.g. a more aggressive driver is actually driving.

Crash Management

- On detection of a crash (or other event of significance) the Witness application is arranged to take one or more of the following actions:
 - Announce that it has detected an accident (audio/screen prompt)
 - Call the emergency services (with option to cancel) – e.g:
Audio/screen prompt: 'Witness has detected that you have been involved in a (serious) accident and will call the emergency services. If this is not the case, please cancel within 10 seconds.'
 - Provide reassurance
 - Provide the user with a checklist of things to do:
 - Take photographs of vehicles involved in the incident (inc number plates)
 - Take down name, address, insurance details etc of 3rd parties involved in incident
 - Communicate to the insurance company that an incident has been detected (e.g. low bandwidth data or text message)
 - Protect the high quality recorded data so it is not overwritten
 - If appropriate – or in response to a request from a communication to the phone from the insurance company – transmit all or selected portions of the recorded data associated with the incident.
 - N.B. Use of the communication channels is controlled by the Witness application to prioritise essential communications such as calls to the emergency services.

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- Note that data transmission from the mobile telephone to the insurance company may be automatic (for example, triggered by a detected incident) or manual (for example, in response to a request from the insurance company). In the latter case, the Witness application may include functionality to allow the insurance company to browse through the files available on the mobile telephone so as to select one or more for transmission to the insurance company.

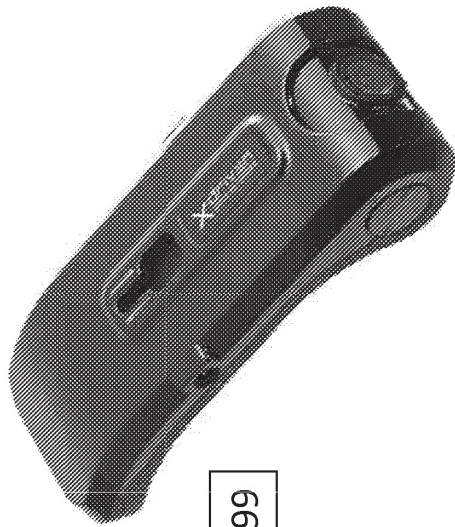
Data processing for other purposes

- 10 The recorded input from the sensors can be used for other purposes. In particular, for aiding the insurance company assess the risk profile of the driver (and potentially modify an insurance premium accordingly). Various parameters may be used to determine this:
- 15
- If the Witness application incorrectly detects an incident of significance, and receives feedback that the vehicle was not in accident (but was in a near miss) – this could alter the risk profile of the driver. For example – if this happens frequently, but no accident occurs over a given period, this could be an indicator that the driver is good at reacting to potential hazards.
- 20
- Erratic driving (e.g. jerky steering or braking detected by G-force sensor).
 - Driving faster than the speed limit allocated to a given road (detected by GPS).

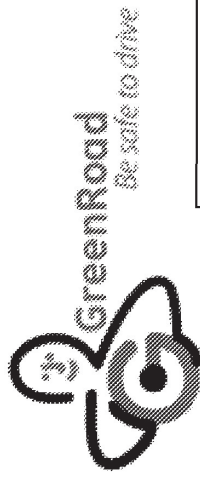
Project Spike

Development of
Witness™
a driving app

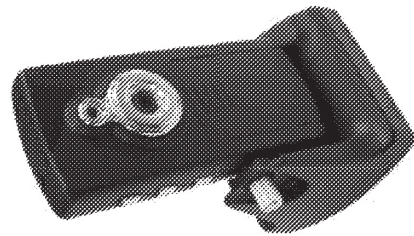




\$299



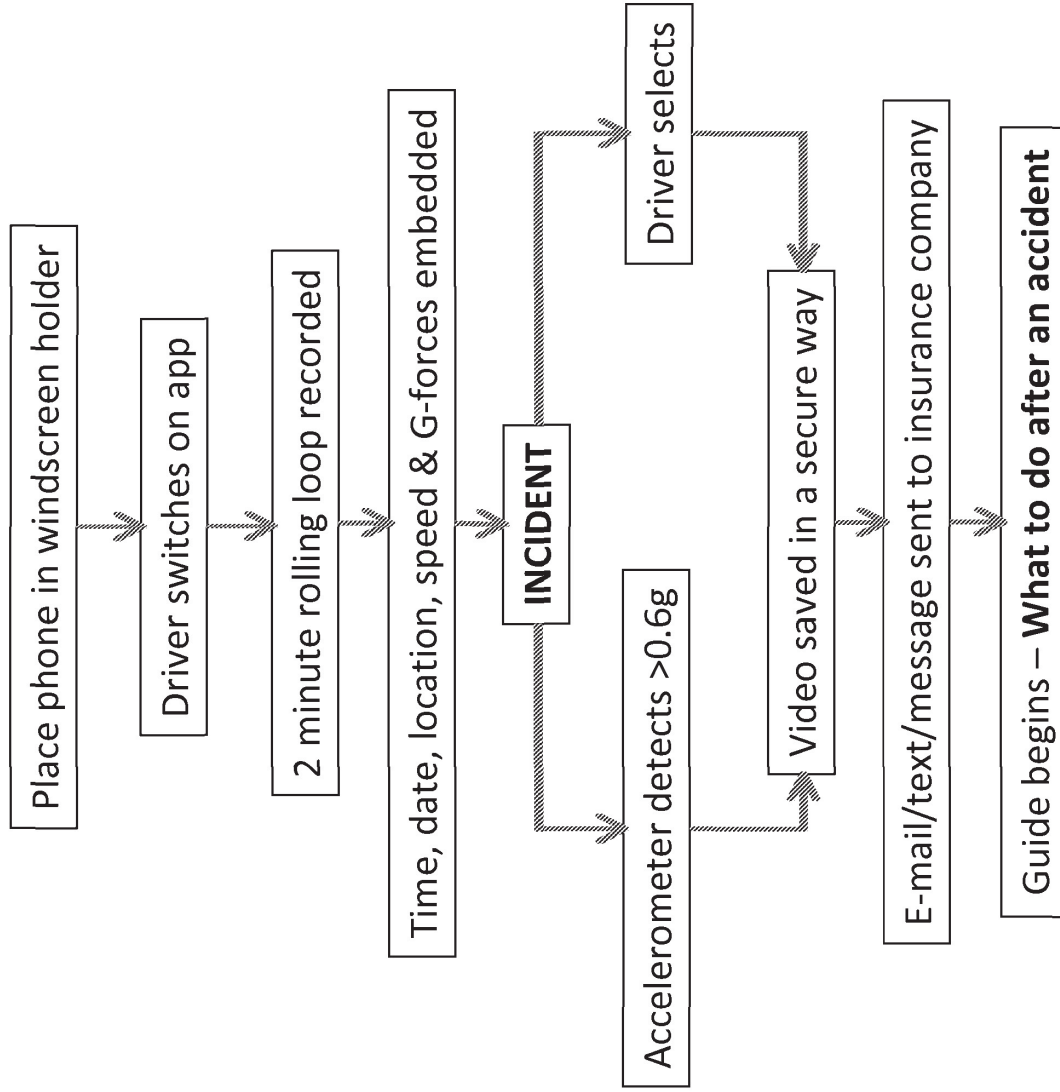
\$1,000 for 3 years



\$59.95



\$379



Key features

- System is simple to set up and use
- Settings made automatically to video, etc
- Hands-free and sat nav can still be used
- Video is tamper-proof for a period of time
- Driver can e-mail copy of video
- Simple video format for ease of use