Internal distribution code:

(A) [-] Publication in OJ
(B) [-] To Chairmen and Members
(C) [-] To Chairmen
(D) [X] No distribution

Datasheet for the decision of 13 September 2017

Case Number: T 0045/13 - 3.5.02

Application Number: 07713141.5

Publication Number: 1997090

IPC: G08G1/017, G08G1/054, G08G1/04

Language of the proceedings: EN

Title of invention:
A system for detecting vehicles

Patent Proprietor:
Kria S.R.L.

Opponent:
Scan Service s.r.l

Relevant legal provisions:
EPC Art. 123(2), 56, 111(1)
RPBA Art. 12(2), 12(4)

Keyword:
Inventive step - main request (no)
Appeal decision - remittal to the department of first instance (yes)

Europäisches Patentamt
European Patent Office
Office européen des brevets

Beschwerdekammern
Boards of Appeal
Chambres de recours

European Patent Office
D-80298 MUNICH
GERMANY
Tel. +49 (0) 89 2399-0
Fax +49 (0) 89 2399-4465

Case Number: T 0045/13 - 3.5.02

D E C I S I O N
of Technical Board of Appeal 3.5.02
of 13 September 2017

Appellant: (Opponent)	SCAN SERVICE s.r.l Via Ponticelli Sant'Antonio 3 53040 Cetona (SI) (IT)
Representative:	De Anna, Pier Luigi DeAnna-Patent Schubertstraße 10 80336 München (DE)
Respondent: (Patent Proprietor)	Kria S.R.L. Via S. Vitale, 3 20038 Seregno (IT)
Representative:	Bosotti, Luciano Buzzi, Notaro & Antonielli d'Oulx Via Maria Vittoria, 18 10123 Torino (IT)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 29 November 2012 rejecting the opposition filed against European patent No. 1997090 pursuant to Article 101(2) EPC.**

Composition of the Board:

Chairman	R. Lord
Members:	M. Léouffre
	J. Hoppe

Summary of Facts and Submissions

I. The opponent has appealed against the decision of the opposition division to reject the opposition against the European patent No. 1 997 090.

The opposition division held that the grounds for opposition mentioned in Articles 100(a), (b) and (c) EPC did not prejudice the maintenance of the patent as granted. The opposition division came in particular to the conclusion that the subject-matter of claim 1 of the main request was novel having regard to documents:

D1 : WO 94/28377 A, and

D6 : WO 93/19441 A

and did not lack an inventive step having regard to the combination of each of these documents with:

D7 : M. Donoser et al, "Detecting, Tracking and Recognizing License Plates", 8th Asian Conference on Computer Vision, Tokyo, Japan, 18 to 22 November 2007.

II. With the statement of grounds of appeal (letter dated 25 July 2013) the appellant referred to two newly cited documents:

D9 : "Video-based Car Surveillance: License Plate, Make, and Model Recognition", Thesis by L. Dlagnekov, 2005, University of California, San Diego, and

D10.5: A. Chilgunde et al, "Multi-Camera Target Tracking in Blind Regions of Cameras with Non-overlapping Fields of View", British Machine Vision Conference, September 2004, London.

III. In an official communication annexed to the summons to oral proceedings the board expressed the preliminary opinion that the subject-matter of claim 1 of the main

request was novel having regard to D6 and that documents D9 and D10 did not seem to be *prima facie* relevant to the assessment as to whether the contested decision, which identified a difference between D1 or D6 and the invention in that the order of tracking a vehicle and its license plate was reversed, was correct, and that it was therefore unlikely that documents D9 and D10, which had been filed after the end of the opposition period, would be admitted into the proceedings.

IV. Oral proceedings before the board took place on 13 September 2017.

The appellant (opponent) requested that the decision under appeal be set aside and that the patent be revoked in its entirety.

The respondent (patent proprietor) requested that the appeal be dismissed or, if that was not possible, that the patent be maintained in amended form on the basis of the new auxiliary request dated 13 September 2017 filed during the oral proceedings or on the basis of one of the auxiliary requests 1 to 4 filed anew with the letter dated 25 July 2013, in that order.

V. Claim 1 of the main request (patent as granted) reads as follows:

"A system to detect the transit of vehicles (V) having license plates (T), the system comprising:
at least one video camera (12) to detect license plates capable of framing the license plates of said vehicles and of generating a corresponding video signal,

a processing module chain (100-106) sensitive to said video signal to perform license-plate-recognition processing on said video signal,
at least one further video camera (14) to detect vehicles capable of framing a zone (C) of transit of said vehicles (V) having license plates and of generating a respective corresponding video signal, and
a respective chain of processing modules (200-206) sensitive to the video signal generated by the one further video camera (14) to perform on said respective video signal vehicle-tracking processing to detect the position and three-dimensional shape of vehicles in transit in said zone, characterised in that
said processing module chain (100-106) includes a test module (102) to detect the presence of a vehicle (V) in transit by performing a test as to whether an image of a license plate persists on a series of images (Tl,...,Tn) of the video signal generated by the one video camera (12), and
a plate-tracking module (104) which is activated by said test module (102) when said test has positive outcome,
wherein the system includes a supervisor module (300) that aggregates the results of said license-plate-recognition processing modules (100-106) and said vehicle-tracking processing modules (200-206) to generate information records (304) each identifying the transit modality in said zone (C) of a vehicle (V) identified by a given license plate tracked and recognised by said chain of processing (100-106)."

Claim 1 of the first auxiliary request comprises all the features of claim 1 of the main request and adds:

"wherein said respective chain of processing (200-206) sensitive to said respective video signal is configured

to perform on said respective video signal processing of the Structure From motion or SFM type, in consequence to said given license plate being detected in a certain position by said license-plate-recognition processing modules (100-106)".

Claims 2 to 14 are dependent on claim 1.

VI. The appellant argued essentially as follows:

Claim 1 recited "a test module to detect the presence of a vehicle in transit by performing a test as to whether an image of a license plate persists on a series of images" while the description was silent about "a test module performing a test". A basis for this feature could at most be found in the passage bridging pages 14 and 15 of the published application wherein "the test module detects the fact that the relative information persists on a series of images". Detecting and performing were however not synonyms. Performing meant "carrying out", "executing" or "acting", while detecting meant "noticing", "perceiving", "spotting" or "distinguishing". The means for carrying out the two actions were different. Therefore claim 1 contravened Article 123(2) EPC.

Bearing in mind that the board agreed that the same level of knowledge of a person skilled in the art should be considered when assessing the sufficiency of disclosure (Article 83 EPC) and the presence of inventive step (Article 56 EPC), in the present case, that license plate recognition at the date of filing was known to a person skilled in the art, the objections raised under Article 100(b) EPC were withdrawn. Documents D9 and D10.5, which aimed at

depicting the state of the technology at the date of filing of the contested invention, might consequently also not be necessary to demonstrate that claim 1 did not involve an inventive step in the sense of Article 56 EPC.

While the description of the invention filed in 2006 mentioned a clock of 2.5 GHz, the calculation capability of a microprocessor in year 1992 was limited by a clock of at most 50 MHz. That was the reason why the license plate tracking camera 8 of D6 took only 2 pictures per second and had to be triggered by the vehicle identifying camera 6 (see figure 1). In 2006, new technologies were available for the processors and the cameras to perform a test as mentioned in the invention. Therefore, in 2006, a person skilled in the art, having followed the evolution of the technology, would have replaced the camera 8 of D6 with a modern camera capable of tracking a license plate in a series of images and necessitating no trigger from the vehicle identifying camera 6. Also the technology for the memories had developed and there was no longer a problem with storing more pictures per second, or even a video sequence. Furthermore the features of claim 1 did not mention any camera triggered by another camera or a corresponding processing chain. In claim 1, the information delivered by the two cameras was simply combined. Hence, a system as shown in D6 wherein camera 6 would have been upgraded to the level of technology available in 2006 would have shown all the features of the granted claim 1. Alternatively, in 2006, due to the technological development, camera 6 could have even been removed and camera 8 used for detecting both the license plates and the vehicles.

The new auxiliary request had been filed very late. The absence of any feature related to the triggering of the further video camera by the first video camera identifying the license plate had been discussed during the opposition proceedings. This aspect was not discussed in the statement of grounds of appeal because it was obvious that such a feature was missing. Therefore, this auxiliary request could and should have been filed earlier. Following the rules of procedure of the boards of appeal, whereby a party should file its complete case at the beginning of the appeal, the new auxiliary request should not be admitted into the proceedings.

VII. The respondent argued essentially as follows:

Concerning the objection related to the terms "performing" and "detecting", the application as filed, in particular from page 13, line 35 to page 14, line 8 and page 14, line 32 to page 15, line 13 with figure 4, disclosed that the set of processing modules performed processing steps including the detection of the presence of a license plate. The test module 102 detected the fact that the relative information persisted through a series of n images. For the application of Article 123(2) EPC literal support for the wording was not required. This was established case law as cited for example in decision T0667/08.

For the assessment of inventive step and in particular for answering the question relating to the difference between the invention and the systems disclosed in D1 or D6, documents D9 and D10.5 were not pertinent. These documents were therefore not to be admitted into the proceedings.

The invention as claimed involved an inventive step having regard to D6 and D1. According to the paragraph bridging pages 6 and 7 of D6, camera 8 was triggered by camera 6, i.e. the vehicle was first detected followed by the detection of the license plate. The same applied to the system of D1 with its two cameras shown in figure 1. The invention differed from this prior art. According to page 2, lines 10 to 13 and page 3, lines 7 to 14 of the original application, the available technology was limited and could lead to some errors when establishing a forensic profile. Consequently a traffic violation could lead to a fine, but an incorrect fine could lead to a suit against the municipality. To avoid the wrong detection of a vehicle, the invention foresaw to first detect the license plate and thereafter the vehicle, the vehicle detection helping to filter out the artefacts, e.g. a reflection of a license plate in a mirror. This was counter-intuitive because even a human being was used to first detect a large object and then to analyse the content of the picture of the large object. Any argument related to the steps of detecting first the license plate and then the vehicle would be based on an ex post facto analysis.

The objection of lack of inventive step brought forward during the oral proceedings against claim 1 of the main request was based on a new line of argument. It was alleged that a feature relating to the triggering of the vehicle identifying camera 12 by the camera processing means which detects the license plate was missing in claim 1. A corresponding feature originating from page 22, lines 10 to 14 had therefore been introduced into claim 1 of the new auxiliary request together with the features of original claim 15. The IR

feature mentioned in this cited passage had been omitted because this had never been considered as an essential or mandatory feature in the patent or during the proceedings. The combination in claim 1 of the features of former claim 15 with the features of previous dependent claims also did not infringe Article 123(2) EPC, because all these features could be found together in the description relating to figure 4.
Since the objection relating to the alleged missing feature was first raised by the appellant during the oral proceedings before the board, for reasons of fairness and equity the new auxiliary request should be admitted into the proceedings.

Reasons for the Decision

1. The appeal is admissible.

2. Main request

2.1 Article 100(c) in combination with Article 123(2) EPC

The appellant objected that the feature "a test module to detect the presence of a vehicle in transit by performing a test as to whether an image of a license plate persists on a series of images" had not been originally disclosed.
According to the passage bridging pages 13 and 14 of the description as originally filed "The set of processing modules indicated collectively with 16 in figure 4... performs the processing steps described below." One of these processing steps is a step of detecting the fact that the relevant information persists on a series of images, as recited in the

paragraph bridging pages 14 and 15 of the original description. Thus, one of the test modules of the set of test modules performs, in the sense of actively launching, a step of detecting that the relevant information persists on a series of images, the step itself being a detection test, which can be a test of noticing, passively spotting or actively detecting. The board therefore considers that the feature "a test module to detect the presence of a vehicle in transit by performing a test as to whether an image of a license plate persists on a series of images" is supported by the original description. Consequently, the ground for opposition raised under Article 100(c) in combination with Article 123(2) EPC does not prejudice the maintenance of the patent.

2.2 Article 54 EPC

The novelty of the subject-matter of claim 1 as granted was not contested.

2.3 Article 56 EPC

2.3.1 D6 discloses a vehicle monitoring system for detecting the transit of vehicles having license plates.

The system comprises one camera 8 to detect license plates, capable of framing the license plates of said vehicles and of generating a corresponding signal. The system comprises also a processing module chain sensitive to said signal to perform license-plate-recognition processing on said signal (see page 7, lines 13 to 17).

The processing module chain of camera 8 includes a test module to detect the presence of a vehicle in transit

by performing a test as to whether an image of a license plate persists on a pair of images of the signal generated by the one video camera 8.
The fact of detecting and analysing a license plate on two different pictures constitutes a test as to whether an image of a license plate persists on a pair of images and a test of detecting the presence of a vehicle in transit.

The system comprises a further video camera 6 to detect vehicles capable of framing a zone of transit of said vehicles having license plates (see page 6, lines 24 to 29) and of generating a respective corresponding video signal. It also comprises a respective chain of processing modules sensitive to the video signal generated by the further video camera 6 to perform on said respective video signal vehicle-tracking processing to detect the position and three-dimensional shape of vehicles in transit in said zone (see page 7, lines 19 to 28). With the further camera 6 the speed of the vehicle at a certain time point is also detected. Then, the server 47 (see page 48, line 27 to page 49, line 2) receives the extracted license plate details, the acquisition time and the instantaneous speed.

It can therefore be concluded that the system of D6 includes a supervisor module that aggregates the results of said license-plate-recognition processing modules and said vehicle-tracking processing modules to generate information records each identifying the transit modality in said zone of a vehicle identified by a given license plate recognised by said chain of processing.

2.3.2 The subject-matter of claim 1 differs from the system disclosed in D6 in that:

the at least one video camera is capable of generating a video signal;
a test is performed as to whether an image of a license plate persists on a series of images of the video signal generated by the at least one video camera;
a plate-tracking module is activated by said test module when said test has a positive outcome,
the license plate being tracked by said chain of processing.

2.3.3 The board agrees with the appellant that the license plate recognition system used in D6 was limited by the technology available in 1992. The board agrees also that, at the date of filing of the application which led to the contested patent, i.e in the year 2006, processors were clocked at a much higher speed than in 1992, that storage capacities were much larger and that tracking a license plate in a video sequence was known. This is also acknowledged in the description from page 15, line 24 to page 16, line 21 and the respondent did not challenge these findings. The board notes for the sake of completeness that this conclusion was reached without reference to the prior art documents filed by the appellant during the appeal procedure, so that it has not been necessary to address the question of the admissibility of these documents.

2.3.4 Consequently, at the date of filing, a person skilled in the art would have implemented the system of D6 with a modern camera linked to a processing chain able to take and process many more than two pictures per second, i.e. a video sequence framing a license plate. The detection of a license plate on a video sequence necessarily starts with a first test as to whether an

image of a license plate exists on a first frame, followed by the detection of the same license plate on the next frames. Thus the features "a test is performed as to whether an image of a license plate persists on a series of images of the video signal" and "a plate-tracking module is activated by said test module when said test has positive outcome" and "the license plate being tracked by said chain of processing" would necessarily be present in a system according to D6 upgraded in the year 2006 with a video camera and a corresponding processing chain. Therefore, a person skilled in the art who would have followed the development of the technology would have arrived at the claimed invention in the year 2006 without exercising any inventive skill.

2.3.5 The respondent argued that the invention differed from the system disclosed in D6 in that the invention requires detecting and tracking the license plate before identifying the position and three dimensional shape of the vehicle (see original description, page 15, lines 14 to 23), while in D6 the vehicle detection is carried out first, followed by the identification of the license plate. According to the respondent, an advantage of the invention would be that the rate of errors in the identification of vehicles due to artefacts misleading the identification of the license plate would be reduced.

2.3.6 However, contrary to the assumption of the opposition division and of the respondent, claim 1 of the granted patent, constituting the main request, does not define that the result of the test as to whether an image of a license plate persists on a series of image of the video signal generated by the one video camera acts to trigger the further video camera for detecting the

position and three-dimensional shape of vehicles in transit. The system of claim 1 only includes a supervisor module which aggregates the results of the license plate recognition processing modules and the vehicle tracking processing modules to generate information records. In claim 1, there is no triggering of one camera by the other nor any triggering of one processing module chain by another.
Nevertheless such triggering is not excluded. It follows that the granted claim encompasses a system as in D6 wherein the license plate detection is triggered by the vehicle detection and wherein the camera 8 with its processing modules has been upgraded to a video camera.
The subject-matter of claim 1 therefore does not involve an inventive step according to Article 56 EPC.

3. Admissibility of the auxiliary request filed during the oral proceedings and remittal to the department of first instance

3.1 The opposition division came to the conclusion that the subject-matter of the main request (claims as granted) involved an inventive step having regard to the available prior art because "none of the prior art documents discloses a system with two cameras wherein the narrow-field camera which detects the licence-plate is initially used and then the wide-angle camera is triggered by it". The opposition division thus assumed that claim 1 comprised a feature relating to the triggering of one camera by the other camera.

3.2 Although the importance of this feature had been clear from the beginning of the opposition procedure, the argument that it was not actually defined in the

granted claim 1 was raised by the appellant for the first time during the oral proceedings before the board. The appellant mentioned this finding neither in their statement of grounds of appeal nor in their subsequent letter dated 8 July 2017.

3.3 While the appellant was well aware of Article 12(2) RPBA, according to which "the statement of grounds of appeal and the reply shall contain a party's complete case", they did not address what they now argue was an error on the part of the opposition division. Thereby they did not respect the general principle that "the appellant's analysis of the contested decision is needed in its statement of grounds of appeal because the legal dialogue between the board of appeal, the appellant and the respondent which is being sought on appeal can take place only if the appellant has at least addressed those reasons for the contested decision which it considered incorrect" (see Chapter IV.E.2.6.3 b) on pages 1098-1101 of the Case law of the Boards of Appeal of the European Patent Office). Consequently, for fairness and equity it cannot be held against the respondent that the new auxiliary request should have been filed with the response to the statement of grounds of appeal for it to be complete, or that the response did not constitute a valid response having regard to Article 12(2) RPBA.

3.4 With the newly filed set of claims constituting the new auxiliary request the respondent aimed at providing a claim 1 which comprises a feature relating to the triggering of one camera by the video processing chain of the other camera. The filing of this new auxiliary request is therefore considered as a valid attempt to remedy an objection that was first raised during the oral proceedings before the board.

3.5 The newly filed amended claim 1 comprises all the features of granted claims 1 and 10 (original claims 1, 2, 3 and 15) supplemented by a passage originating from original page 22, lines 10 to 14. The feature "IR" originally present in the that passage has been omitted. The board agrees with the respondent that the infrared characteristic of the image is not and has never been considered as an essential feature. It follows that leaving this feature out when inserting this passage into claim 1 does not contravene Article 123(2) EPC.
It seems also, *prima facie*, to the board that the combination of the features of granted claim 10, corresponding to original claim 15 which was dependent on claim 2, with the features of original claim 3, is supported by the description (page 18) which discloses the SFM technology as a technology applicable to all variants of the invention.

3.6 Consequently, since the newly filed auxiliary request, which was filed in reaction to a new line of argument brought forward by the appellant for the first time during the oral proceedings, complies, *prima facie*, with the requirements following from Article 123(2) EPC, the board decided to exercise its discretion to admit the new auxiliary request into the proceedings (Article 12(4) RPBA).

3.7 The present case is a complex one, and the amendment made in claim 1 of the new auxiliary request is a significant one, so that it would have been difficult for the board to deal with this request without adjournment of the oral proceedings. Moreover it seems to the board only fair to give the appellant the opportunity to address in detail the question as to

whether the new auxiliary request complies with Article 123(2) EPC and/or to find further relevant prior art in order to address this amendment. Under these circumstances the board decided that it was appropriate to exercise its power under Article 111(1) EPC to remit the case to the department of first instance for further prosecution on the basis of this new auxiliary request. Consequently it was not necessary for the board to address the remaining auxiliary requests of the respondent.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside

2. The case is remitted to the opposition division for further prosecution on the basis of the auxiliary request dated 13 September 2017.

The Registrar: The Chairman:

G. Nachtigall R. Lord

Decision electronically authenticated