

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Attorney Docket No.: 10973-0232IP1

In re Patent of: Smith et al.  
U.S. Patent No.: 7,241,034 B2  
Issue Date: July 10, 2007  
Appl. Serial No.: 10/285,312  
Filing Date: October 31, 2002  
Reexam. Cert. No.: 7,241,034 C1  
Reexam. Cert. Date: June 14, 2013.

Title: AUTOMATIC DIRECTIONAL CONTROL SYSTEM FOR VEHICLE  
HEADLIGHTS

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**DECLARATION OF RALPH V. WILHELM, PH.D.**

## TABLE OF CONTENTS

I. PERSONAL WORK EXPERIENCE AND AWARDS .....	1
II. MATERIALS CONSIDERED .....	5
III. PERSON OF ORDINARY SKILL IN THE ART (“POSITA”).....	7
IV. CLAIM CONSTRUCTION .....	8
V. LEGAL PRINCIPLES .....	9
VI. PRIOR ART CONSIDERED .....	11
A. Background of the Art.....	13
VII. SUMMARY OF THE ’034 PATENT.....	18
VIII. CLAIMS 7-9, 13-18, 20-21, 23-24, 28-29, 31-32 AND 35 – OBVIOUS FROM KATO IN VIEW OF TAKAHASHI.....	20
A. All of the limitations of independent claim 7, except the “threshold” limitation, and all limitations of its dependent claims 8, 14-18, 20-21, 23-24, 28 and 32 are disclosed in Kato.....	20
1. Claim Chart for Kato.....	22
2. Takahashi discloses the “threshold” limitation in claim 7.....	28
3. Claims 7, 8, 14-18, 20-21, 23-24, 28 and 32 are unpatentable as obvious from Kato in view of Takahashi .....	30
4. Takahashi also discloses the additional limitations in dependent claims 9, 13, 29, 31 and 35 .....	31
5. Claims 9, 13, 29, 31 and 35 also are unpatentable as obvious from Kato in view of Takahashi .....	33
IX. CLAIM 10 – OBVIOUS FROM KATO IN VIEW OF TAKAHASHI AND FURTHER IN VIEW OF MORI.....	36
X. CLAIMS 11 AND 19 – OBVIOUS FROM KATO IN VIEW OF TAKAHASHI AND FURTHER IN VIEW OF UGUCHI.....	38
XI. CLAIM 12 – OBVIOUS FROM KATO IN VIEW OF TAKAHASHI AND FURTHER IN VIEW OF ISHIKAWA .....	42
XII. CLAIM 22 – OBVIOUS FROM KATO IN VIEW OF TAKAHASHI AND FURTHER IN VIEW OF PANTER.....	45
XIII. CLAIMS 25 AND 26 – OBVIOUS FROM KATO IN VIEW OF TAKAHASHI AND FURTHER IN VIEW OF SUZUKI.....	47

XIV. CLAIMS 30, 33 AND 34 – OBVIOUS FROM KATO IN VIEW OF TAKAHASHI AND FURTHER IN VIEW OF OKUCHI.....	49
XV. CLAIM 3 – OBVIOUS FROM KATO IN VIEW OF UGUCHI .....	52
A. All of the limitations of independent claim 3 are disclosed in Kato, except the “threshold” limitation and the “rate of change of steering angle” limitation, which are disclosed in Uguchi.....	52
B. Uguchi discloses the “threshold” limitation and the “rate of change of steering angle” limitation in claim 3 .....	54
C. Independent claim 3 is unpatentable as obvious from the combination of Kato and Uguchi.....	55
XVI. CLAIM 4 – OBVIOUS FROM KATO IN VIEW OF UGUCHI AND FURTHER IN VIEW OF ISHIKAWA .....	57
XVII. CLAIM 5 - OBVIOUS FROM KATO IN VIEW OF UGUCHI AND FURTHER IN VIEW OF TAKAHASHI .....	58
XVIII. CLAIM 6 - OBVIOUS FROM KATO IN VIEW OF UGUCHI.....	59
XIX. ADDITIONAL REMARKS.....	60

## **I. PERSONAL WORK EXPERIENCE AND AWARDS**

1. My name is Ralph V. Wilhelm. I am currently President of Wilhelm Associates, LLC., an independent consulting firm that I founded in 2001. The firm specializes in automotive electronics, telematics, systems engineering, data communications between systems and devices, and product/market and business strategies. In this role, I provide advice and assistance in the development and use of market assessment methodologies, product requirement definitions, product design, product and market strategy, expert witness support and testimony, and product implementation in my areas of technical expertise.

2. In addition to the below summary, a copy of my current curriculum vitae more fully setting forth my experiences and qualifications is submitted herewith as Koito Exhibit 1020 (“KOITO 1020”).

3. I have more than 44 years of industrial experience in Engineering. I received a Bachelor of Science degree in Electrical Engineering from Cornell University in 1967, a Doctor of Philosophy degree in Ceramic Engineering/Material Science from Rutgers University in 1972, an Executive Management Program certificate from the University of Illinois in 1985, and a Master of Business Administration degree in Operations and Strategy from the University of Michigan in 1987.

4. I have authored dozens of published technical papers and delivered

many lectures addressing various aspects of automotive electronic systems. I am a named inventor on three issued U.S. patents directed to methods of constructing automotive sensors.

5. I have been involved in the development of and/or have experience in working with closed loop control systems that had a variety of sensor input that was fed into a microprocessor that then made decisions based on that input versus trigger information or thresholds or max/min values and fed instructions to on-board actuators or communication links on-board and/or off-board the vehicle. Typical closed loop control systems where I have had this experience include automotive systems such as stability control systems, anti-skid braking systems, traction control systems, engine control systems, and others.

6. I was a Senior Research Scientist from 1971 to 1978 at General Motors Research Laboratories. Thereafter, from 1978 to 1984, I worked in General Motors Corporation's AC Spark Plug Division as the Supervisor and Department Head of Materials Development.

7. From 1984 to 2001, I worked at and held various positions in the AC Spark Plug Division and Delphi Delco Electronics Corporation. I was the Department Head of Advanced Instruments & Display from 1984 to 1989.

8. From 1989 to 1994, I was a Director of Advanced Development/Systems Integration. There, I oversaw the design and development of

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