

(12)

(11) **EP 1 517 281 A3**

EUROPEAN PATENT APPLICATION

(88) Date of publication A3: **01.06.2005 Bulletin 2005/22**

(51) Int Cl.7: **G08G 5/04**

(43) Date of publication A2: 23.03.2005 Bulletin 2005/12

(21) Application number: 03028757.7

(22) Date of filing: 12.12.2003

(84) Designated Contracting States:

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HU IE IT LI LU MC NL PT RO SE SI SK TR
Designated Extension States:

AL LT LV MK

(30) Priority: **16.09.2003 EP 03020963 07.11.2003 EP 03025695**

(71) Applicant: COMSOFT GmbH 76227 Karlsruhe (DE)

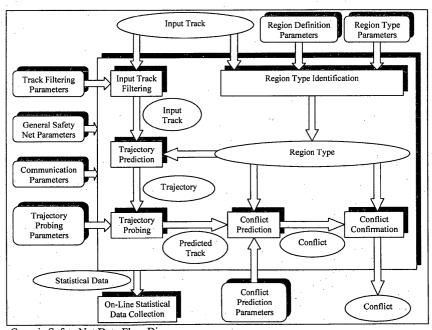
(72) Inventor: Janssen, Micha, Dr. 4850 Montzen (BE)

(74) Representative: VOSSIUS & PARTNER Siebertstrasse 4 81675 München (DE)

(54) Safety nets for alerting of hazardous situations in air traffic

(57) The present invention relates to a system and a method for alerting of a potentially hazardous situations in air traffic on the basis of surveillance data wherein predicted conflicts are identified based on the prediction of future air traffic situations. A basic idea of the present invention consists of defining a stochastic model for trajectory prediction in which the uncertainty of the

prediction is represented as a function of the prediction time. The stochastic model for predicting trajectories is preferably used to construct a stochastic model for conflict prediction. In the latter model, probabilities of conflict are compared to minimum confidence levels and allow to decide whether a given predicted situation is a predicted conflict or not.



Generic Safety Net Data Flow Diagram

Fig. 2



EUROPEAN SEARCH REPORT

Application Number

EP 03 02 8757

	DOCUMENTS CONSIDERE				
Category	Citation of document with indication of relevant passages	n, where appropriate,	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.CI.7)	
D,X	R.A. PAIELLI & H.ERZBER Probability Estimation JOURNAL OF GUIDANCE, CO DYNAMICS, vol. 20, no. 3, 1 May 1 pages 588-596, XP002319 RESTON VA, USA * the whole document *	for Free Flight" NTROL, AND .997 (1997-05-01),	1,2,15, 16,20, 29-31	G08G5/04	
X A	WO 97/34276 A (VDO LUFT GMBH; SCHIEFELE, JENS; VON) 18 September 1997 * abstract *	SCHULZE, RICHARD;	1-7,15, 20-24, 29-32 8-10,25		
	* page 10, last paragraparagraph 3; figure 2 * * page 16, paragraph 3 paragraph 3; figure 8 * * page 23, paragraph 1 paragraph * * claims 1,3,9-12 *	- page 17,		TECHNICAL FIELDS SEARCHED (Int.Cl.7)	
X A	EP 0 415 587 A (HUGHES 6 March 1991 (1991-03-6 * abstract * page 3, line 31 - line * abstract * page 3, line 31 - line * abstract * page 3, line 31 - line * abstract	06)	1,2,7, 12,13, 15,16, 20,29-3 5,21-23		
		-/			
	The present search report has been de	rawn up for all claims Date of completion of the search		Examiner	
Munich		4 March 2005	He	ß, D	
CATEGORY OF CITED DOCUMENTS X: particularly relevant if taken alone Y: particularly relevant if combined with another document of the same category A: technological background		E : earlier patent do after the filing da D : document cited L : document cited f	T: theory or principle underlying the in E: earlier patent document, but public after the filing date D: document cited in the application L: document cited for other reasons		
O : non-written disclosure P : intermediate document		& : member of the s document			



EUROPEAN SEARCH REPORT

Application Number EP 03 02 8757

	DOCUMEN IS CONSID	ERED TO BE RELEVAN	<u> </u>		
Category	Citation of document with ir of relevant passa	ndication, where appropriate, ges		elevant claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
А	US 5 488 563 A (CHA 30 January 1996 (19	96-01-30)	10, 13, 16, 20- 29, 32, 35-	23, 30, 33,	
	figures 13,14 *	- column 9, line 21; - column 10, line 25 *			
A	LUNDBERG, KRISTIAN; APPLE) 22 February * page 4, line 12 - figure 2 *	TRANSPONDERTECH AB; BJOERKLUNG, PONTUS; 2001 (2001-02-22) page 5, line 30; - line 30; figure 5	16, 30,	5,15, ,29, ,32	
	page 11, Time 21				
					TECHNICAL FIELDS SEARCHED (Int.CI.7)
	The present search report has I	peen drawn up for all claims			
	Place of search	Date of completion of the searc	h		Examiner
	Munich	4 March 2005	4 March 2005 He		
X : part Y : part docu A : tech O : non	ATEGORY OF CITED DOCUMENTS icularly relevant if taken alone icularly relevant if combined with anotiment of the same category inological background written disclosure rmediate document	L : document ci	nt document g date ited in the ap ted for other	lying the inv , but publish oplication reasons	rention ed on, or

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO.

EP 03 02 8757

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

04-03-2005

Patent document cited in search report		Publication date		Patent family member(s)		Publication date	
WO 9734276	A	18-09-1997	DE CA WO DE EP US	2247042 9734276	A1 D1 A1	18-09-199 18-09-199 18-09-199 27-01-200 30-12-199 13-03-200	
EP 0415587	A	06-03-1991	AU CA DE DE EP HK	69024563	A1 D1 T2 A2	27-06-199 01-03-199 15-02-199 05-09-199 06-03-199 28-06-199	
US 5488563	A	30-01-1996	FR AT CA DE DE DK EP ES GR JP RU US	2093546 69307377 69307377 565399 0565399 2099391 3022297	T A1 D1 T2 T3 A1 T3 T3 A C1	08-10-199 15-02-199 08-10-199 27-02-199 03-07-199 14-07-199 13-10-199 16-05-199 30-04-199 01-02-199 10-01-199	
WO 0113138	Α	22-02-2001	WO SE	0113138 9902882		22-02-200 13-02-200	

FORM P0459

© Tor more details about this annex : see Official Journal of the European Patent Office, No. 12/82