

Title (en)  
AUGMENTED REALITY-BASED FIREFIGHTER TRAINING SYSTEM AND METHOD

Title (de)  
ERGÄNZTES REALITÄTSGESTÜTZTES TRAININGSSYSTEM UND VERFAHREN FÜR FEUERWEHRLEUTE

Title (fr)  
SYSTEME ET PROCEDE D'ENTRAINEMENT POUR LES POMPIERS BASE SUR DES CONDITIONS REELLES AMPLIFIEES

Publication  
**EP 1423834 A1 20040602 (EN)**

Application  
**EP 02752732 A 20020807**

Priority  

- US 0225065 W 20020807
- US 92704301 A 20010809
- US 12336402 A 20020416

Abstract (en)  
[origin: WO03015057A1] Method and apparatus are presented for an augmented reality-based firefighter training system. The system includes hardware for motion tracking, display, and vari-nozzle instrumentation. This hardware incorporates a display (5) with a firefighter's self contained breathing apparatus (SCBA). Additionally, this display has been instrumented for measuring head position and acquiring a view through a camera (4) from the user's perspective. Headphones in SCBA also provide audio stimuli to the user. This instrumented SCBA has been ruggedized for protection against shock and undesirable environmental pollutants. The instrumented vari-nozzle (9) has been ruggedized so it is protected against both shock and undesirable environmental pollutant penetration through a hard cover and soft equipment mounts. Shock sensitive equipment is seated on an island which is supported by one or more soft vertical posts. System software includes a real-time fire model, a layered smoke obscuration model, simulation of an extinguishing agent, real-time extinguishing agent interaction with airborne system particles, and an interface to a zone fire model. Physical modeling and graphical elements in the software combine to create realistic-looking fire, smoke, and extinguishing graphics. Extinguishing agent force computations are applied in a realistic manner to approximate interactions with airborne particles such as fire, smoke, and aerosols. Occlusion of virtual objects by real people or objects using orthogonal billboards, soft edges, and motion tracking data is described and implemented. The hardware and software components together contribute to a realistic, interactive training experience for firefighters.

IPC 1-7  
**G09B 19/00**; **G06G 7/48**; **G06F 17/00**

IPC 8 full level  
**A62B 9/00** (2006.01); **G02B 27/01** (2006.01); **G06T 15/40** (2006.01)

CPC (source: EP)  
**A62B 9/006** (2013.01); **A62C 99/0081** (2013.01); **G02B 27/017** (2013.01); **G02B 27/0176** (2013.01); **G06F 3/011** (2013.01); **G06T 15/40** (2013.01)

Citation (search report)  
See references of WO 03015057A1

Cited by  
CN109117533A

Designated contracting state (EPC)  
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LI LU MC NL PT SE SK TR

DOCDB simple family (publication)  
**WO 03015057 A1 20030220**; CA 2456858 A1 20030220; EP 1423834 A1 20040602

DOCDB simple family (application)  
**US 0225065 W 20020807**; CA 2456858 A 20020807; EP 02752732 A 20020807