



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶: H04N 7/18, 9/47	A1	(11) International Publication Number: WO 99/62263 (43) International Publication Date: 2 December 1999 (02.12.99)
(21) International Application Number: PCT/US99/11937 (22) International Filing Date: 28 May 1999 (28.05.99) (30) Priority Data: 09/087,239 29 May 1998 (29.05.98) US 09/087,240 29 May 1998 (29.05.98) US (71) Applicant (for all designated States except US): NORTHEAST ROBOTICS LLC [US/US]; 15 Twin Bridge Road, Weare, NH 03281 (US). (72) Inventors; and (75) Inventors/Applicants (for US only): WHITE, Timothy, P. [US/US]; 146 Lull Road, New Boston, NH 03070 (US). MERVA, John, J. [US/US]; 68 Oak Ridge Road, Weare, NH 03281 (US). BOUVIER, William, P. [US/US]; 35 Valley View Lane, New Boston, NH 03070 (US). (74) Agents: BUJOLD, Michael, J. et al.; Davis and Bujold, 4th floor, 500 North Commercial Street, Manchester, NH 03101 (US).		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published With international search report.
(54) Title: MINIATURE INSPECTION SYSTEM		
(57) Abstract		
A miniature inspection system for observing an object. The system comprises a camera defining an optical axis (8) defined between the camera and the object when located at the object inspection location. A ring light (14) is located concentrically with respect to and along the optical axis at a location between an entrance aperture of the camera and the object, when located at the object observing location. A field lens (10) is located along the optical axis at a location between the camera and the object, when placed at the object observing location. A mirror or a penta-prism may be located along the optical axis, between the camera and the field lens, so that light reflected from the object along the optical axis is reflected by either the mirror or the penta-prism toward the entrance aperture of the camera. An illumination source (50), may be also provided to supply illumination along the optical axis of the system.		