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(21) International Application Number: PCT/US96/12967 (22) International Filing Date: 8 August 1996 (08.08.96) (30) Priority Data: 08/512,822 ✓ 9 August 1995 (09.08.95) ✓ US ✓ 08/620,749 ✓ 11 March 1996 (11.03.96) ✓ US ✓ (71) Applicant: ASHTECH, INC. [US/US]; 1170 Kifer Road, Sunnyvale, CA 94086 (US). (72) Inventors: ZHODZICSHSKY, Mark; Shipilovsky Projezd 41-2-3, Moscow, 11555 (RU) ✓ VEITSEL, Victor; Valdajsky Projezd 13-19, Moscow, 125445 (RU). SILA-NOVATISKY, Stanisloy; Saltikovskaya Street, 29-3-44, Moscow, 111672 (RU) ✓ ASHJABE, Javad; 14403 Sobey Road, Saratoga, CA 95070 (US) ✓ GARIN, Lionel; 3475 Greer Road, Palo Alto, CA 94303 (US) ✓ (74) Agents: PARSONS, Gerald, P. et al.; Majestic, Parsons, Siebert & Hsue, Suite 1450, Four Embarcadero Center, San Francisco, CA 94111-4121 (US).	(81) Designated States: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, UZ, VN, ARIPO patent (KE, LS, MW, SD, SZ, UG), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i> (88) Date of publication of the international search report: 01 May 1997 (01.05.97)	
(54) Title: MULTIPATH ERROR REDUCTION IN A SPREAD SPECTRUM RECEIVER FOR RANGING APPLICATIONS (57) Abstract A receiver of a radio frequency signal having a pseudo-random noise (PRN) code, and techniques of processing such a signal that are especially adapted for ranging applications. A signal corresponding to the PRN code is locally generated and used for decoding the received signal in a manner to reduce ranging errors that can result when multipath (delayed) versions of the radio frequency signal are also present. A significant application of the receiver and signal processing techniques of the present invention is in a Global Positioning System (GPS), wherein a number of such signals from several satellites are simultaneously received and processed in order to obtain information of the position, movement, or the like, of the receiver. A delay locked loop (DLL) correlator, provided in each of the receiver's multiple processing channels, locks onto a line of sight signal from one of the satellites with the effect of any multipath signal(s) being significantly reduced. 		