

(43) International Publication Date
12 September 2014 (12.09.2014)(51) International Patent Classification:
H04B 10/11 (2013.01)(21) International Application Number:
PCT/IL2014/050223(22) International Filing Date:
5 March 2014 (05.03.2014)

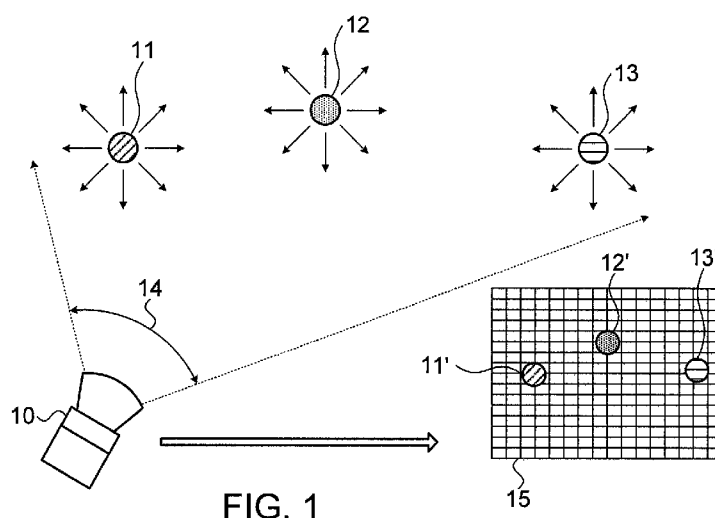
(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/851,268 5 March 2013 (05.03.2013) US(71) Applicant: **SHILAT OPTICAL SYSTEMS LTD**
[IL/IL]; Rorberg Center, Pasteur Wing, 3 Pekeris Street,
76703 Rehovot (IL).(72) Inventor: **GUETTA, Avishay**; 13 Kalman Byaler Street,
76661 Rehovot (IL).(74) Agent: **SECESMSKI, Ephraim**; P.O. Box 4500, 91044
Jerusalem (IL).(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY,
BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM,DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,
HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR,
KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME,
MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ,
OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA,
SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM,
ZW.(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ,
UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ,
TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK,
EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV,
MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM,
TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
KM, ML, MR, NE, SN, TD, TG).**Published:**

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments (Rule 48.2(h))

(54) Title: FREE SPACE OPTICAL COMMUNICATION SYSTEM

**FIG. 1**

(57) **Abstract:** A method and system for optical communication between a transmitter and receiver, using a video camera to image the location of the remote transmitter. The comparatively slow frame rate of conventional detector arrays, which would limit communication rate, is overcome by reading only pixels in a region of interest around the transmission source image, and these pixels can then be read out and the communication information on them retrieved, at a frame rate much faster than that of the conventional full frame read-out. Custom wiring of the array can be used to enable implementation of this increased frame rate. Other methods of increasing communication speed using a video camera array detector include spreading the optical signal spatially along a row of pixels, and reading those pixels simultaneously in one frame, or wavelength multiplexing the optical information, and dispersing the different wavelengths onto successive pixels of the array.