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J gtdgtv'Uej y glp{ gt'cpf 'O qj co o cf 'U{ chtwf kp"

Kpxguki cvkpi 'Wmtcuqple'Rqukskqkpi 'qp'O qdkg'Rj qpgu"269"

Xlcej gurx'Hkqpgpnu.'Ej ctrkg'Ewngp.'Lco gu'F'OEctuy gni'

Tqdww'wmtcuqple'lpf qqt'r qukskqkpi 'wukpi 'tcpuo kwgt'cttc { u"277"

Uxgttg'J qm "cpf 'Ectn'kpi g'EOP kngp"

Hcu'cpf 'Ceewtce'Wmtcuqple'5F 'Nqecrk cvkqp'Wukpi 'yj g'VUcV6O WUK'Crn qtkj o ""282

M{ qj gk'O k wcpk'Vqij kq'kq.'O cucpqt'Uwi ko qvq.'J ktqo lej kJ kuj k wo g"

C'aci /htgg'iqnwkp'q'vppqdt'wukg'lpf qqt'tcentkpi 'wukpi 'y cm'o qwpvgf 'wmtcuqple'tcpuf wegtu"287"

Gtle'COY cp'cpf 'Cp'lpf { c'UORcwi'

Cp'Ceewtce'Vgej pls wg'ht'Uko wncpgqwu'O gcuwtgo gpv'qh'5F 'Rqukskq'cpf 'Xgrmek{ 'qh'c'O qxkpi 'Qdlgev'Wukpi 'c'Ukpi ng"

Wmtcuqple'Tgegkxgt'Wpk"297"

Uj ki gnk'P cmo wtc.'Vqo qj knq'Ucvq.'O cucpqt'Uwi ko qvq.'J ktqo lej kJ kuj k wo g"

Cpcn'uki'qh'yj g'Rgthqto cpeg'qh'cp'Wmtcuqple'Nqecr'Rqukskqkpi 'U{ ugo 'dcugf 'qp'yj g'go kuukqp'qh'Mcucio k'eqf gu"2: 4"

H0L0f nctgl.'VOCi wkgtc.'L0C0Hgt'p'pf gl.'L0C0O qtgpq'cpf 'C0I qtf knq"

"

"

Y NCP 'TUU'*Uki pcn'Ut gpi yj 'Dcugf 'O gjv qf u+.'Hkpi gtr tkp'kpi "

"

TUUKdcugf 'Gwerkf gcp'F kncepeg'Crn qtkj o 'hqt'kpf qqt'Rqukskqkpi 'cf cr vgf 'hqt'yj g'wug'kp'f { pco kcm{ 'ej cpi kpi 'Y NCP "

gp'k'qpo gpw'cpf "o wnk'rgxgn'dwkl kpi u"2: 9"

Ugdcuwcp'I cpugo gt.'Wy g'I tq'Ëo cpp.'U{ w'cppe'J cnuq{ cp"

Kpf qqt'Rqukskqkpi 'Wukpi 'Y NCP 'Eqxgtci g'Ctgc'Gwko cvgu"2; 5"

Nwte'Qunk'Vqo o k'Rgt'@'cpf 'Tqdgtr'Rlej 2 "

Crn qtkj o le'Utwci kgu'ht'Cr'v'kpi ": 2403'Nqecvki'kpi gtr tkp'kpi 'q'Gp'k'qpo gpw'ci'ej cpi gu"322"

Tgp'J' cpugp.'Tleq'Y kpf.'Ej tkwcp'UO'gpugp.'Dgpv'Vj qo ugp"

Hcwn'Vqngtcpv'Rqukskqkpi 'wukpi 'Y NCP 'Uki pcn'Ut gpi yj 'Hkpi gtr tkp'w"332"

Ej tkwqu'Ncwf'kcu.'O lej crku'ROO lej cgrkf gu.'Ej tkwqu'I'ORcpc { kqvw"

Y k'HK'Rqukskqkpi <U{ ugo 'Eqpukf gtcvku'cpf 'F gxleg'Ecndtcvku"33: "

Vj qtuvgp'Xcwr gn'Lej gp'Ugskj.'H²f²tle'Mkghg.'Ugr j cp'J' clo gtn'Ë4p'Vj krgeng"

Y k'HK'Dcugf 'kpf qqt'Rqukskqkpi <Dcuk'Vgej pls wgu.'J { dtkf'Crn qtkj o u'cpf 'Qr gp'Uqhy ctg'Rrc'htqto ""347"

O cvgq'E' r tkcpk'Rj kkr r g'Ecpcrf c.'H²f²tle'Ncuudg.'Hcp'qku'Ur kgu"

C'ugevqt/dcugf 'eco r wu'y kf g'lpf qqt'r qukskqkpi 'u{ ugo ""357"

Vj qo cu'I' cmi j gt.'Dkpi j eq'Nk'Cpftgy 'I' 'F go r ugt.'Ej tku'Tk'qu"

Qr wo k'cvkqp'O qf gnhqt'cp'kpf qqt'Y NCP/dcugf 'Rqukskqkpi 'U{ ugo ""365"

[qw\ j gpi.'Qwo c { c'Dccr.'Cngzcpftg'Eco kpcf c"

Tger'ko g'ecndtcvku'ht' 'TUU'kpf qqt'r qukskqkpi 'u{ ugo u"372"

Ana M. Bernardos, José R. Casar, Paula Tarrío

RF RSS (ZigBee, FM, General RF), Fingerprinting

Gpcdrkpi "Nqy /r qy gt "Nqecrk cvkqp" hqt "O qdlrg" Ugpugt "P qf gu" "379"
 Iqti g "Lwcp" Tqdrq. "Ugdcurkcp" Vtqo gt. "O qplec" S wktqi c "cpf" "Tcrh" Ngj pgtv"
 FCNGZC "Tcpi g/Hgg. "Cf cr vkg" "kpf qqt" "Nqecrk cvkqp" U{ ugo "Gpj cpegf" "d{ "Nko ksgf" "Hkpi gtr tlpvki" "389"
 Qri c "G0Ugi qw" "Ugrkqu" "C00 kklpgqu" "cpf" "Ugrkqu" "E(C0Vj qo qr qwqu"
 Cf /j qe "P gwy qtmu" "Ck lpi" "kpf qqt" "Ecrkdtcvkpu" "QhJ" gvgqi gpgquw "F gxlegu" hqt "Hkpi gtr tlpvki" "Crr rdecvkpu" "397"
 Hcpeguccpvpkq "F gm" "Tquc. "J grncp" "Ngr r @nqunk" "Ughcpq" "Dlcpewmq." "cpf" "LctkP wto k"
 C "O qf gr" "Uy ksj lpi" "Ugs wgpvkn" "O qpv" "Ectnq" "Cni qtkj o" "hqt" "kpf qqt" "Vtckenki" "y kj" "Gzr gtko gpcvni" "TUUF cvc" "3: 3"
 Mxvlp "Cej wgi wk" "Lcxlgt" "Tqf cu. "Ectnu" "L0Guewf gq. "Lqcs wlp" "O f wgl "
 Cp "Gpxkqpo gpv" "Cf cr vkg" "li Dgg/ dcugf" "kpf qqt" "Rqukklpki" "Cni qtkj o" ""3: ;
 Lcplg "Ncttcei c. "Ngt g" "O wi wktc. "Lwcp/ O cpwgn" "Nqr gl /I ctf g. "Lwcp/ K pcekq" "Xc| s wgl "
 Nqy "Rqy gt" "Nqecvkqp" "Rtqvqeqn" "dcugf" "qp" \ li Dgg" "3; 9"
 Nwji "Dt" a u "O cteq" "Qrxgk c. "Rgf tq" "Rlpj q. "P wpp" "Dqti gu" "Ectxcij q"
 TUUKrqecrk cvkqp "y kj" "ugpuqtu" "r rcegf" "qp" "y j" "gwgt" "426"
 Rcqmq "Dctuqeej k" "Hcpeguq" "Hwtctk" "Rcqmq" "P gr c. "Hcpeguq" "Rqyqv"

TOF, TDOA based Localization

KGGG": 2403 "Tcpi lpi" "cpf" "O wnk" "r vgtcvkqp" hqt "c" "Uqhy ctg/ f ghkpgf" "Rqukklpki" "Tgegkgt" "432"
 H0Vcr r gq. "D00 gto kqf. "O 0Ekwcp c"
 Qp "y j" "O kpo k" "cvkqp" "qh" "F khtg" "gpv" "Uqwtegu" "qh" "Gttqt" hqt "cp" "TVV/ Dcugf" "kpf qqt" "Nqecrk cvkqp" "U{ ugo "y kj" "qwwcp" { "
 Ecrkdtcvkqp" "Uci g" "438"
 Lcxlgt "Rtlqg. "Ucpvki q" "O c| wgru. "Cnhpuq" "Dcj kmq. "Rvklek" "Hgt p" "pf gl . "Twd2 p" "O 0Nqtgp" q. "Gxctkuv" "L0Cdtki"
 Eqputckpgf "O czko wo "Nknrkj qqt" "Rqukklpki" "hqt" "WY D' Dcugf" "J wo cp" "O qvkqp" "Vtckenki" "444"
 \ 0Y 00 gnujppg. "G0Uqwnq. "E0Uglpgt. "J 0Nwgenp. "C0Y kwpgdgp"
 C "O cyj go cvkcn" "O qf gnhqt" "c" "Rqrctkucvkqp" "Dcugf" "Qtkgpcvkqp" "O gcuw go gpv" "Rtkpek rg" "lp" "vlo g" "qh" "Cttkcn" "Tcf kq"
 Nqecrkcvkqp "U{ ugo u" "454"
 Cpf tgcu" "Gk r qj . "L34p" "Vj lgrngng"
 Rgthqto cpeg" "ucdkkx" "qh" "uqhy ctg" "VqC/ dcugf" "tci lpi" "lp" "Y NCP" "45: "
 O cte" "Ekwtcpc. "F qo gpleq" "I kwkpkcpq. "Cndgtv" "P gtc. "Hcpekuq" "Dctegm/ Cttq { q. "Kt cgr" "O ct vkp/ Guectjpc"
 J ctf y ctg" "k0 r ngo gpcvkqp" "qh" "c" "Rctveng" "Hknqt" hqt "Nqecvkqp" "Gurko cvkqp" "468"
 F cplgr "HtqE" "Lcp" "Nepi gt. "Cpf t2" "HtqE" "O ct nq" "T3Ergt. "Witkej" "J glpngr"
 Cf "j qe" "kpf qqt" "Rggt/ vq/ r ggt" "Vtckenki" "wulpi" "Tgrvkg" "Nqecvkqp" "Gurko cvkqp" "474"
 F qj { wpi "Retm" "Lqppuwi" "Mcpj . "cpf" "Gwpi" "Uwp" "Mko "
 F ktgcvkqp" "Gurko cvkqp" hqt "Egnwct" "Gpj cpegf" "Egm" "K" "Rqukklpki" "Wulpi" "O wnk rg" "Ugevt" "Qdugt" "xcvkpu" "482"
 Ik wv" "Uj gp. "I cuwj kq" "Qf c"

UWB (Ultra Wide Band)

Nqy "Rqy gt" "CUE" "tcpuo kwgt" hqt "WY D/ Kt" "tcf kq" "eqo o wplecvkqp" "cpf" "r qukklpki" "488"
 Ej 0Tqdgtr. "R0Vqo 2. "T00 gtl. "E0Dqwtq. "C0Drwgt" "cpf" "ROC0Hctkpg"
 WY D' "Ugs wgpvkn" "O qpv" "Ectnq" "Rqukklpki" "wulpi" "Xk wcn" "Cpej qtu" "495"
 Rcwri0 gkuupgt. "Vj qo cu" "I ki r" "cpf" "Mrcwu" "Y ktucn"
 Cp "ceewtcv" "WY D' tcf ct" "lo ci lpi" "o gvy qf" "wulpi" "kpf qqt" "o wnk cvj" "gej qgu" hqt "cti gu" "lp" "uj cf qy" "tgi kqpu" "4: 5"
 Uj wj gkHwlc. "Vcmw" "c" "Ucneo qvq. "Vqtw" "Ucvq"
 Cp "k0 r wng" "Tcf kq" "WY D' "Vtcpuqkxgt" "y kj" "J ki j /Rtgekukqp" "VQC" "O gcuw go gpv" "Wpk" "4; 2"
 I wpgt "Hkuj gt. "Qrgmk" "Mn" "o gpnq. "F gp" { u" "O ct v" "pgpnu. "cpf" "J glp" "Nwgf ki gt"
 Gzr gtko gpcvni "Xcrk cvkqp" "qh" "c" "VQC" "WY D' Tcpi lpi" "Rrwhqto" "y kj" "y j" "g" "Gpgti { "F gvcvkqp" "Tgegkgt" "4; :
 O lej cni" "O 0Rlgt" | { m" "Vj qo cu" "xqp" "f gt" "I tAp"
 WY D' "Rqukklpki" "Wulpi" "Mpqy p" "kpf qqt" "Hgcwgu" "o" "Gpxkqpo gpv" "Eqo r ctkuq" "528"
 Lcp "Mkwkpunk" \ crgunk" "Vcne" { c" | co c| cvq"
 Wntc/ Y k' gdcpf "U{ ugo /Ngxgn" "Uko wcvqt" hqt "Rqukklpki" "cpf" "Vtckenki" "WURQV" "537"
 Vj qo cu" "I ki n" "Rcwri0 gkuupgt. "Lqugh" "Rt gkuj vdg/ Rhwgi n" "cpf" "Mrcwu" "Y ktucn"
 kpf qqt "P cxki cvkqp" "Tgugetej" "y kj" "y j" "g" "Mj gr gtc" "KKO qdlrg" "Tqddv" "Cp" "Gzr gtko gpcvni" "Dcugrkpg" "y kj" "c" "Ecug/ uwf { "qp" "Wntc/
 y k' gdcpf "Rqukklpki" "546"
 Co cpf c" "Rtqtqm" "Cf tkcp" "Ctktg. "Crgzcpf gt" "Dcj t. "Laj p" "T0htugtqww" "cpf" "Crej gtkq" "O ct vkpqrk"

Gzr gtlo gpcvriF go qputcwkq'qh'Ugrh/Nqecrk gf "Wmtc"Y kf gdcpf "Kpf qqt'O qdkg" Tqdqv'P cxki cwkq'U{ uvg "555"
O ctegm'Ugi wtc.'J quuglp'J cuj go k'Etukcp'Ukugtpc'cpf "Xlegpv'g'w'
Gxcnwkwq'qh'igs vkt go gpu'ht'WY D'Nqecrk'wkq'u' uvg u'lp'j qo g'gpv'vc'p' go g'p'v'cr r' r'ck'wkq'u"564"
T0' gkm'I 0Uj gp'cpf "T0Vj qo @
WY D/dcugf 'Nqecri'Rqukkq'p' U{ uvg <htqo 'c'uo cm/uecg'Gzr gtlo gpcvriR'v'htqo 'q'c'rti g/uecg'F gr n'j {cdng'U{ uvg "572"
R0Vqo 2.'E0Tqdg'v'T0O gt|.'E0Dqwg'q'p.'C0D'w'g'p'cpf "R0C0H'et'kp'g"
Qp'dgpg'ku'cpf 'ej cm'p' gu'qh'r' gtuq'p'q'ecrk' wkq'w'ulpi 'wmtc/y kf gdcpf 'ugpu'qtu"582"
T0J gtto c'p'p.'L0U'cej u.'H0D'q'p'k'j " "
Cee'w'ce{'Eq'p'uk' g'c'wk'q'p'qh'WY D'Nqecrk' wkq'U{ uvg u'F g'f'k'ec'v'g'f' h'q't'N'cti g/U'ec'g'Cr r' r'ck'wk'q'p'u"589"
N'w'nc'u' \ y k'gm'j.'O'c'ri q't| c'v'c'p'cu'q'p.'E'j t'k'uc'p'c'ue'j g't.'W'it'k'ej 'U'ej y g'uk'p'i g't.'I g't'v'H0V't'q'o g't'c'p'f 'V'j q'o cu' \ y k'eni'
K'p'f q'q't'W'm't'c'Y k'f g'd'c'p'f 'N'q'ec'v'k'p' H'k'p'i g't'r t'k'p'v'k'p'i "594"
J c't'c'f 'M'3/4m'E'j t'k'v'q'r j 'U'g'k'p'g't"
O w'k'k'g'x'g'n'E'q'o r' g'o g'p'c't'f 'U'g'u'q'h'U'g's w'p'eg'u'c'p'f 'y' g'k'c'r r' r'ck'wk'q'p'lp'WY D"599"
G'p't'k'w'g'I c't'e'f'c.'L'w'c'p'L'g'u'À'u'I c't'e'f'c.'L'g'u'À'u'W'g'o c.'O 0'E'c't'o g'p'R'2't'g'l.'F c'p'l'g'n'I T'w'k'

Industrial Metrology & Geodetic Systems, iGPS (Nikon)

R'g'h'q't'o c'p'eg'G'x'c'n'w'k'q'p'q'h'k' RU'ht'K'p'f w'w'k'c'ri'Cr r' r'ck'wk'q'p'u"5: 4"
T'q'd'g't'U'ej o k'w.'U'w'c'p'p'g'P'k'ue'j.'C'rg'z'c'p'f g't'U'ej 3/4p'd'g't'i.'H'ic'p'em'f 'F g'o g'g'u'g't.'U'g'x'g'p'T'g'p'f g't'u"
K'p'f q'q't'p'c'x'k'i c'w'k'q'p'q'h'o'c'ej k'p'g'u'c'p'f 'o' g'c'u'w't'k'p'i 'f'g'x'k'eg'u'y k'j 'k' RU"5; 2"
L'w'k'c'U'ej y g'p'f g'o c'p'p.'V'k'o c'p'O'À'ng't.'T'q'd'g't'v'M'ic'w'ue'j p'g'k'f g't"
R'ev'j 'V't'c'c'k'p'i 'y k'j 'k' RU"5; : "
E'w'f'k'c'F g'r g'p'j c'ri'
N'q'ec'v'c'<C'p'g'y 'j k'j 'c'ee'w't'c'e'f 'k'p'f q'q't'r'q'uk'k'q'p'k'p'i 'u' uvg "626"
E'j t'k'i'T'k' q'u.'I g'y k'p'T'q'd'g't'w.'L'q'g'n'D'c't'p'g'u.'c'p'f 'P'w'p'l k'q'I c'o d'c'ng'
R'q'uk'k'q'p'k'p'i 'c'p'f 'U'p'ej t'q'p'k' c'w'k'q'p'q'h'K'p'f w'w'k'c'ri'T'q'd'q'w"633"
E'j t'k'v'q'r j 'J g't't'o c'p'p.'O'c't'k'J g'p'p'g'u"
V'j g'W'g'q'h'M'c'm'o c'p'H'k'g't'k'p'i 'l'p'E'q'o d'k'p'c'w'k'q'p'Y k'j 'c'p'G'g'e'v't'q'p'k'e'V'c'ej g'q'o g'v'g't"638"
U'p'p'l'c'I c'o u'g.'V'j q'o c'u'C0Y w'p'f g't'r'k'ej.'R'ev'g't'Y c'uo g'k'et.'F w'c'p'M'q'i q'l"

Radar Systems

R'q'y g't'N'g'x'g'n'U'w't'x'g'k'c'p'eg'ht'c'p'HO EY /dcugf 'Nqecri'Rqukkq'p'k'p'i 'U{ uvg ""647
T'g'lo c't'R'h'g'n'O c't'm'u'R'k'ej g't.'R'j k'k'r r'U'ej g't|.'C'p'f t'g'c'u'U'g'n' g't.'I À'p'v'g't'U'g'n' j c'o o g't

Mapping, SLAM

U'lo w'nc'p'g'q'w'u'O q'd'k'g'T'q'd'q'v'c'p'f 'T'c'f k'q'P q'f g'Nqecrk' wkq'lp'Y k'g'g'u'u'U'g'p'q'ut'P g'y q't'm'u"657"
L'w'g't'i g'p'I t'c'g'h'p'ung'k'p.'C'o q'u'C'nd'g't'v.'R'ev'g't'D'k'd'g't.'C'p'f t'g'c'u'U'ej k'k'p'i "
O q'f g'n'p'i 'c'p'f 'U'lo w'c'v'k'p'i 'C'u'uk'k'x'g'G'p'x'k'q'p'o g'p'w'lp'5/F 'y k'j 'y' g'l' CO CO QVQ'V'q'q'm'k'663"
E'j t'k'v'q'r j 'U'c'j n'V'k'o 'U'ej y c't'v' "
C'w'q'o c'v'g'f 'Nqecrk' wkq'p'q'h'c'N'c'ug't'U'ec'p'p'g't'lp'K'p'f q'q't'G'p'x'k'q'p'o g'p'w'W'ulpi 'R'ic'p'c't'Q'd'l'g'ew"669"
M'q'w'q'uj 'M'j q'uj g'j c'o "
WY D'UNCO 'y k'j 'T'c'q/D'ic'x'eny g'n'k'f g'f 'O q'p'w'g'E'c't'q'f'F c'v'c'c'u'w'k'c'v'k'q'p"676"
V'q'd'k'u'F g'l'È'g't.'L'34p'V'j k'g'g'eng"
F'g'x'g'g'ur'k'p'i 'c'p'K'p'v'g'i t'c'v'g'f 'U'q'h'y c't'g'G'p'x'k'q'p'o g'p'v'ht'q'o q'd'k'g'T'q'd'q'v'P c'x'k'i c'w'k'q'p'c'p'f 'E'q'p't'q'n"67; "
\ q'n'p'V'w' c.'L'p'q'u'T'w'f c'p.'I 'a d'q't'U' g'f g't'n'f'p'k'

High Sensitive GNSS

F'K'P'I R'Q'U'2'J k'j 'U'g'p'uk'k'k'k'f 'I P'U'U'r'v'ht'q'o 'h'q't'f'g'g'r 'k'p'f q'q't'ue'g'p'c't'k'q'u"687"
J g't'd'g't'v'P k'g'f g't'o g'k'et.'D'g't'p'f 'G'k'u'h'g'm'g't.'L'q'p'Y k'p'ng'n'V'j q'o c'u'Rep'f'.'D'g't'p'j c't'f 'T'k'g'f n'V'j q'o c'u'Y 3/4|.'T'q'd'g't'v'U'ej y g'k'ng't'v'U'g'h'c'p'q'
N'c'i t'c'u'c.'I w'w'c'x'q'N'q'r g'l /T'k'w'g'p'q.'F'c'x'k'f 'L'o k'p'g'l /D'c'p'q'u"
F'g'g'r n'f 'K'p'v'g'i t'c'v'g'f 'I RU'ht'K'p'f q'q't'P c'x'k'i c'w'k'q'p"697"
C'p'f t'g'f 'U'q'w'x'k'g'x.'V0L'g'h't'g'f 'F'k'eno c'p'

F q r r r g t 'T c v g 'O g e u w t g o g p u 'l p 'U c p f c t f 'c p f 'J k i j 'U g p u k s k k v 'I R U T g e g k x g t u < V j g q t g v k e c r i C p e n { u k u 'c p f 'E q o r c t k u q p '6: 6"
P c f g l f c 'U q n u q x c . 'F c p k e r g 'D q t k q . 'D 3 / 4 l g 'H q t u u g m 'I 2 t c t f 'N c e j c r g m g"
Q p 'y j g 'u c v g / q h 'y j g / c t v / q h 'I P U U 'u k i p e r i c e s w u k s k q p '6 'c 'e q o r c t k u q p 'q h 'v o g 'c p f 'I t g s w g e { 'T q o c k p 'o g j q f u '6: 5"
V j q o c u 'R e p { . 'G e n e t v I 3 / 4 r g t . 'O c t m w u 'K u k i r g t 'c p f 'L > p 'Y k p n g r i'
I c r k g q 'I I R U 'k p f q q t 'P c x k i c v k q p ('R q u k s k p l p i 'h q t 'U C T 'c p f 'V t c e n k p i 'C r r r e c v k q p u '723"
G t y k p 'N 3 / 4 p g t v 'Y q h i c p i 'D @ . 'G e n e t v I 3 / 4 r g t . 'I q e j g p 'O 3 / 4 m g t "
E q o r q u k s g 'I P U U 'u k i p e r i C e s w u k s k q p 'l p 'R t g u g p e g 'q h 'F c v 'U k i p 'V t c p u k s k q p '729"
M g y g p 'U w p "
G x c n e v k q p 'q h 'c 'R g g t / v / R g g t 'M c m c p 'H k n g t 'k p 'Y g e n 'U k i p e r i C t g c u 'w u k p i 'c 'U q h y c t g 'I P U U 'u k i p e r i U o w e v t '738"
K e d g m g 'M i c g o g t . 'k c 'D e t w p n q x c . 'D g t p f 'G k u h g m g t "
R w n g 'u j c r k p i 'l p x g u k i c v k q p 'h q t 'y j g 'c r r r e c d k r k v 'q h 'h w w t g 'I P U U 'u k i p e n i 'k p f q q t 'g p x k t q p o g p u '747"
F c p e k U n q w t p g v q w . 'G g p c / U o q p c 'N q j c p "
k p f q q t 'r 'q u k s k p l p i 'w u k p i 'h y 'e q u v I R U 't g e g k x g t u < v g u u 'c p f 'u c v k u k e c r i c p e n { u g u '754"
O c t e q 'R k t c u . 'C r i d g t v q 'E l p c

GNSS Indoor, Pseudolites

C 'p g y 'P c x k i c v k q p 'U { u g o 'h q t 'k p f q q t 'R q u k s k p l p i ' * k p N k s g + '75; ; "
C p f t g c u 'U e j o k j / R g h h g t . 'C p f t g 'P w e n g r u . 'O c k n i O k f f g p f q t h 'O l e j c g n i D w t c l c p k u "
k p f q q t 'O w n k r c v j 'O k k i c v k q p '768"
M q u c u 'F t e i p e u "
k p f q q t 'R q u k s k p l p i 'W u k p i 'I R U 't c p u o k v g t u < G z r g t k o g p w e n i t g u w u '775"
C p e c 'H w g t c u w . 'C r g z c p f t g 'X g t x l u e j / R l e q l u . 'P g n i U c o c o c . 'I k e p n e c 'D q l e t q . 'I k t i k q 'I j l p c o q . 'R l e t q 'N q x l u q m j "
4F 'k p f q q t 'r 'q u k s k p l p i 'u { u g o 'w u k p i 'I R U 'u k i p e n i '784"
M g t g o 'Q l u q { . 'C { j c p 'D q l m w v 'c p f 'k l t e j k o 'V g n k p

Innovative Systems

Y k t g r u u 'C e q w u k e 'V t c e n k p i 'h q t 'G z v g p f g f 'T c p i g 'V g r r t g u g p e g '78: "
H g t f l p c p f 'R c e n k 'H g f g t k n i D g w r g t . 'c p f 'W y g 'F O J c p g d g e n i '
U g r h 'N q e c r k c v k q p 'C r r r e c v k q p 'h q t 'k R j a p g 'w u k p i 'q p n i 'C o d l e p v U q w p f 'U k i p e n i '799"
V j q o c u 'L e p u q p . 'E j t k n e c p 'U e j k p f g j c w g t . 'c p f 'L a j e p p g u 'Y g p f g d g t i "
C 'P q x g n i 'V g e j p l s w g 'h q t 'O q d l a g 'R j a p g 'N q e c r k c v k q p 'h q t 'U g e t e j 'c p f 'T g u e w g 'C r r r e c v k q p u '7: 9"
U g h c p \ 'q t p . 'T l e j c t f 'T q u g . 'C r g z c p f g t 'I 3 / 4 . 'T a d g t v 'Y g l i g n i '
C f x c p e g u 'l p 'V j g t o c i l 'k p h t c t g f 'N q e c r k c v k q p < E j c m g p i g u 'c p f 'U q n w k q p u '7: 3"
F c p l g r i J c w e j k f v 'c p f 'P l e q r e l 'M t e j j q h i '
k p f q q t 'k 'C l k o w j 'U g p u q t 'w u k p i 'c 'N k p g e t 'R q n e t k g t '7: ; ; "
M g k c 'C u w w o k 'c p f 'O c p e d w 'U c p q "

Localization, Algorithms for WSN

C 'e q o r c t k u q p 'q h 'O F U O C R 'c p f 'p q p / r k p g e t 't g i t g u k q p '826"
E c t r i 'G n k u . 'O k n g 'J c l c u "
E q q r g t c v k x g 'k p f q q t 'R q u k s k q p 'N q e c v k q p 'w u k p i 'y j g 'R e t c m g n i R t q l g e v k q p 'O g j q f '832"
T O O l e j c g n i D w g j t g t . 'D g p v q p 'V j q o r u q p . 'c p f 'V e q 'I k c "
J { d t k f 'T U U / T V V 'N q e c r k c v k q p 'U e j g o g 'h q t 'Y k t g r u u 'P g y q t m i '842"
C r h p u q 'D e j k n q . 'U c p v k i q 'O c l w e n u . 'L e x l e g t 'R t l g v q . 'R e v k e l c 'H g t p ' p f g l . 'T w d 2 p 'O 0 N q t g p l q 'c p f 'G x c t k u q 'L O C d t k r i '
N q e c r k c v k q p 'U g t x l e g u 'l p 'J { d t k f 'U g r h / q t i c p k l p i 'P g y q t m i '849"
C p p c 'O c t k e 'X g i p k 'O c t e q 'E c t r k 'C r g u u c p f t q 'P g t k '
Q p 'F k u c p e g 'G u n k o c v k q p 'd c u g f 'q p 'T c f k q 'R t q r c i c v k q p 'O q f g n u 'c p f 'Q w r k g t 'F g g e v k q p 'h q t 'k p f q q t 'N q e c r k c v k q p 'l p 'Y k t g r u u '
I g q u g p u q t 'P g y q t m i '856"
C r g z c p f g t 'D q t p . 'O c t k l 'U e j y k g f g 'c p f 'T c h i 'D k n i '
V j g q t g v k e c r i C p e n { u k u 'c p f 'X c r k f c v g f 'G z r g t k o g p w 'q h 'y j g 'N q e c r k c v k q p 'd { 'U w r g t r q u l p i 'D g c u '862"
O c v j k e u 'U e j p g l f g t . 'T c h i 'U e n q o q p "
k o r c e v 'q h 'N q e c v k q p 'G t t q t u 'q p 'I g q i t e r j l e 'T q w k p i 'l p 'T g e r k u k e 'Y U P u '869"
D q 'R g p i 'c p f 'C p f t g y 'J O M g o r "

J { dtkf "cevkxg"cpf "r cuukxg"nqecrk cvkqp "hqt"uo cmi'cti gw"876"
Nwec "Tgi i kcpk "Tqdgtrv "O qtkej gwk"
Npget "Cpvgppc" Ctctf . "Tcpi kpi "cpf "Ceegrqtqo gvgt "hqt"5F "I RU "Nguu "Nqecrk cvkqp "qhi"Y ktrguu "Ugputu"87; "
Rcv { niO c} wnkgy kel . "Cvj cpukqu"l ngrku . "cpf "Mkp "MONgwpi

Frameworks for Hybrid Positioning

Vtcentpi "Hco gy qtnihqt"J gvgtqi gpgquu "Ugput"Uqwtegu"886"
O ctgkng "Mtkj ngt . "Cpvqpkq "MÁi gt"
Kpf qqt "P cxli cvkqp "Kpvi tcvkqp "Rrcvhto "hqt "Hkghki j vki "Rwr qugu"896"
Wy g "TÁr r gn "MckO ctewu "UvÁddg . "cpf "Wy g \ y kpi gt "
C "Nqecrk cvkqp "Hco gy qtnihqt "Y ktrguu "O guj "P gyv qtmu "ó "Cpej qt / Hgg "F kvtkdwkqp "Nqecrk cvkqp "lp "vj g "F GU "Vgudgf "8: "2"
Dcuwep "Dn y ku . "O guw "I Ápg . "Hgrkz "Lwtcuej gm "Ughhgp "I rkej

Applications of Location Awareness

EEF "Eco gtc"cpf "K RU "Vtcentpi "qhi" gqrj { ulecri "Ugputu" hqt "Xkuvcrk cvkqp "qhi" Dwtkgf "Gzr rqukxg "F gxlegu"8; "2"
O qvq { wnk "Ucvq . "Cj o gf "I cdgt . "I wfc "I qnqv . "O ctnil tcuo wgem "cpf "Rlgr cqmq "O ctej gulpk"
C "Tgcrk kpi "qhi"cp "Go gti gpe { "Ecni "U{ ugo "qp" c "Tgcrvko g "Nqecrk cvkqp "Crr rkecvkqp "Rrcvhto "8; "6"
Y qiti cpi "Tqd . "O cphgf "I tkguug . "Cpftgcu "I gtgng

Passive RFID

Ceewtcvg "Kpf qqt "Rqukqp "Guvko cvkqp "d { "vj g "Uy kv "Eqo o wplecvkqp "Tcpi g "Tgeqi plkqp "U/ETT + "O gyv qf "lp "Rcuukxg"
THEF "u { ugo u"8; ; "
P qtkg "Wej kqo k "C uvnk "Kpcf c . "O cpcvq "Hwko qvq . "Vqo qvnc "Y cf c . "Mqwj k "O wuwtc . "J kqo k "Qntf c"
Eqpetgv "Go dgf f gf "THEF "hqt "Y c { / Rqkpv "Rqukqp kpi "928"
F qppcej c "F en { . "Vj qo cu "O grk "cpf "I gtctf "Dcnf y kp "

Active & General RFID

Ko r tqxkpi "THEF / Dcuqf "Kpf qqt "Rqukqp kpi "Ceewtce { "Wukpi "I cuwukp "Rtqeguugu"938"
Hgtppcf q "Ugeq . "Ej tkwkp "Rxi go cpp . "Cpvqpkq "T0Lko 2 pgl . "Y qrtco "Dwti ctf "

Context Detection & Awareness

Cp "Gpgti { / Cy ctg "Kpf qqt "Rqukqp kpi "U { ugo "hqt "CCN "Gpxkqpo gpw"946"
Hicpmi "M8j ngt . "O ctewu "Vj quu . "Crgzcpf gt "Ctkpi "
Ukwcvkqp / Cy ctg "Kpf qqt "Vtcentpi "y kj "J ki j / F gpukf . "Ncti g / Uecng "Y ktrguu "Ugput" P gyv qtmu "953"
F cxli g "O gtleg . "Tqdgtrv "Dkucpk "Crguucpf tc "O krgq "
Kpf qqt "P cxli cvkqp "Crr r tcej "Dcuqf "qp "Crr r tqzko cvg "Rqukqp u"95;
Qt { "Ej qy cy / Nlgo cp . "Wc "Ej tkuvrj . "Mctn "J gkl "Mlgo r gni . "Ej tkuvrj "Vgty gr "
P cxli cvkqp "Dcuqf "qp "U { o dqile "Ur ceg "O qf gni"967"
Mctqkpc "Dctcu . "Cf tkcpq "O qtgk c . "Hkkr g "O gpgugu "
Kpf qqt "Nqecrk cvkqp "Ugtxlegu"cpf "Eqpvzvugpukxg "Crr r kecvkqp "lp "Y ktrguu "P gyv qtmu"972"
T > dgt "Uej wrel . "I a dqt "Xcti c . "cpf "N u l n "V > vj "
I gmqecrk cvkqp "Ugtxgt "ó "Eqqtf kpcvgu "dgeo g "eqpvzv"cy ctg"982"
Vj qtg "Hgej pgt . "O ctgkng "Mtkj ngt . "Cpvqpkq "MÁi gt "

User Requirements

Wigt "Tgs wktgo gpw "hqt "Nqecrk cvkqp "cpf "Vtcentpi "Vgej pqmji { < "C "Uwtxg { "qhi"O kuukp / ur gekhle "P gfg u "cpf "Eqputckpw"989"
Lqwpk "Tcpcvnuqmu . "Rvggt "J @p gn "O lej cgr "Ht g f j qm . "cpf "HO ctuvp / Gm 4i "

O cuu/o ctngv'tgs wktgo gpw'ht'lpf qqt'r qukskplpi 'cpf'p'cxki cvkqp"998"
Nwtk'Y ktqr: "Vqo o kNclpg'cpf'LctkU{tl@kppg"
Tgs wktgo gpw'ht'r qukskplpi 'cpf'p'cxki cvkqp'lp'wpf gti tqwpf "eqpwtwvdkpu"9: 5"
Qrkxgt'Uej pgkf gt

Magnetic Localization

Rqukskqp'Guko cvkqp'Wulpi 'Ct'v'hekn'I gpgtcv'f'O ci pgv'e'Hgrf u"9: 9"
L34i 'Drcpmpdcej'. 'Cdf grn qwo gp'P qttf'kpg

Hybrid IMU Pedestrian Navigation 1

C'O qf wnt'cpf 'O qdkg'U{ ugo 'ht'k'f qqt'Nqecrk' cvkqp"9: 4"
Ncuug'Mkpi dglk'O lej clku'Tqo cpqxcu.'Rcvtkeni'Uej pgkf gt.'O ctv'p'Vtcegej vgt. 'I' kppqu'O cpqrk'
Ugrh/Eqpvclpgf 'k'f qqt'Rqukskplpi 'qp'q'hh'v'j g'uj grh'o qdkg'F gxlegu": 24"
F qo kpln'I wugpdcewt.'Ectugp'k'gt'v'cpf 'Lgpu'Mf'4'uej g"
Rgf gvtkcp'Uo ctv'j qpg/Dcu'f'k'f qqt'P cxki cvkqp'Wulpi 'Wntc'Rqtvcdr'Ugpuqt { 'Gs wkr o gpv": 33"
Ej tkv'p'Nwnkcp'q.'Ej tkv'p'J' 3'ppl' gt.'J' cterf'Ugtpdgti "
C'rqy 'equv'p'cxki cvkqp'w'pk'ht'r qukskqp'qh'r gtuqppgn'chgt'iq'u'qh'I RU'r qukskqp": 38"
Mo 'O cvj kcuugp.'Ngkh'J' cpuugp.'Qf f xct'J' ctkpi uvcf "
C'I RU'k'P'U'dcu'f' 'Ctej k'gewt'g'ht'T'guewg'Vgco 'o qpkqtkpi ": 48"
Cndgt'v'Etqek'O cvk'F'g'Ci quv'p'q.'Co dtqi k'q'O cp'j kpg"
J { dtkf'r qukskplpi 'u' ugo 'eqo d'k'p'kpi 'cpi ng'dcu'f' 'nqecrk' cvkqp.'r gf gvtkcp'f' gcf 't'genupkpi.'. 'cpf' 'o cr'/h'k'gt'kpi ": 55"
Rcwi'Mgo r r k'Lwuu' Rclwpgp.'X'kng'T'cpnk'H'cdk'q'Dgm'pk'Vgtj k'T'cw'k'k'p'p'g"
k'f qqt'Nqecrk' cvkqp'cpf'X'k'w'c'rk' cvkqp'Wulpi 'c'J' wo cp/Qr gtcv'f'Dcenr cen'U' ugo ": 62"
Vlo q'v' { 'Nkw'O cvj gy 'Ectndgti '.I' ggti g'Ej gp.'Lcen'f' 'Ej gp.'Lqj p'M'w.'C'x'k'f' g'j '\ cnj qt"
K' r tqxgf'X'g'j' l'eng'Rqukskplpi 'ht'k'f qqt'P cxki cvkqp'lp'Rctm'kpi 'I' ctc'gu'Vj tqw'j 'Eqo o gteken'f' 'C'x'c'k'rdng'O cr u": 72"
Lqj c'ppgu'Y' ci pgt.'Ectugp'k'gt'v.'C'tpg'Rwtuej y k'j'. 'C'tp'q'f' 'M'k'up'gt"
Ugv'W'r'q'h'c'Eqo d'k'p'g'f'k'f qqt'cpf'Q'w'f qqt'Rqukskplpi 'U'q'w'k'q'p'cpf'G'z'r g'tko g'p'c'v'i'T'g'w'u'u": 7: "
Nctu'Lqj c'ppgu'L'q'p'cu'F' gi gpgt.'Y' q'f'i' cpi 'P' k'go g'k'gt"

Hybrid IMU Pedestrian Navigation 2

Cp'Cr r tqcej 'v'k'p'ht'cutwewt'g/k'f gr gpf gpv'Rgtu'q'p'Nqecrk' cvkqp'y k'j 'cp'k'GGG': 2408706'Y UP ": 86"
Lqj c'ppgu'Uej o k'f'. 'O ctm'u'X'3'4'ngt.'V'q'd'ku'I @ gng.'R'c'ue'c'ri'Y' g'dgt.'Y' k'j' grn 'U'q'tm'M'rc'w'u'F'OO A'ngt/I' r'cugt"
T'U'U'k'dcu'f'k'f qqt'Rqukskplpi 'wulpi 'F' k'x'gt'uk'v' 'cpf' 'k'p'gt'v'k'ri'P' cxki cvkqp": 95"
C'p'f' t'g'cu'H'p'm'J' grn w'D'g'k'ri'k'ej '.O' cvj k'cu'X'q'E'. 'Ej' tkv'p'Uej t'3'4' gt"
E'c'rk'd't'c'v'k'p'q'h'v'j'g'Ceegngt'qo g'vgt'V't'k'f'q'h'c'p'k'p'gt'v'k'ri'O' g'cu'w't'go g'p'v'w'p'k'v'O' c'z'k'o' wo 'N'k'ng'k'j' q'q'f' 'G'uko' cvkqp'cpf"
E't'c'o' 2't/T'c'q'D'q'w'p'f' ": 2"
I' O'R'c'p'ej' c'p'f' g'j'. 'k'U'U'q'j'. 'O' O'L'c'p'u'q'p"
L'q'p'v'c'rk'd't'c'v'k'p'q'h'c'p'k'p'gt'v'k'ri'o' g'cu'w't'go g'p'v'w'p'k'v'c'p'f' 'e'q'q't'f' l'p'c'v'g' 't'c'p'uh't'o' cvkqp'r' c't'c'o' g'v'g't'u'w'ulpi 'c' 'o' q'p'q'ew'r't' 'e'c'o' g't'c' ": 8"
F'c'x'g'\ c'ej' c't'k'j' 'c'p'f' 'O' ci p'w'u'L'c'p'u'q'p"

Foot Mounted Pedestrian Navigation

C'J' k'j 'R't'g'ek'ul'q'p'T'g'ht'g'p'eg'F'c'v'U'g'v'ht'R'gf' g'v't'k'cp'P' cxki cvkqp'wulpi 'H'q'q'v'O' q'w'p'v'g'f' 'k'p'gt'v'k'ri'U'g'p'u'q'tu'": ; 5"
O'lej' c'gn'c'p'i' g'to' c'pp.'R'c'v't'k'eni'T'q'd'g't'w'q'p.'V'j' q'o' cu'M'go' r' v'p'gt.'O' q'j' c'o' o' g'f' 'M'j' k'f' g't"
G'x'c'w'v'k'p'q'h' 'g't'q'X'g'ng'ek'v' 'F' g'g'v'q't'u'ht' 'H'q'q'v'O' q'w'p'v'g'f' 'k'p'gt'v'k'ri'P' cxki cvkqp'U' { u'go' u'": ; ;
K'ic'c'e'U'w'q'i'. 'L'q'j' p/Q'ng'h'P'k'nu'q'p.'c'p'f' 'R'g'v'g't'J' @'f' g'n'
E'q'o' r'c't'k'q'p'c'p'f'G'x'c'w'v'k'p'q'h'Ceegngt'c'v'k'p'D'cu'f' 'U'gr' 'N'g'p'i' v'j' 'G'uko' c'v'q't'u'ht'J' c'p'f'j' g'f' 'F' g'x'legu"; 27"
L'c'ur' g't' 'L'c'j' p.'L'q'ej' g'p'U'g'k'j'. 'N'w'ek'c' 'R'c'v'k'p'q/U'w'f' g'p'enc'. 'W'it'le'j' 'D'c'v'j' g't.'L'c'x'k'g't' 'I' w'k'2't'g'l' 'D'q't'q'p'c'v'
C'p' 'l'o' r' tqxgf' 'uj' q'g'o' q'w'p'v'g'f' 'k'p'gt'v'k'ri'p'c'x'k'i' cvkqp'u' { u'go' ": 33"
P'c'f'k't' 'E'c'w'c'p'g'f'c.'U' { r'k'lg'N'co' { /R'g't'd'c'ri'
E'q'p'v'g'z'v'c'f'c'r' v'k'g' 'C'ri' q't'k'j' o' u'q'k'o' r' tqxg'k'f' qqt'Rqukskplpi 'y' k'j' 'k'p'gt'v'k'ri'U'g'p'u'q'tu'": 39"
W'it'le'j' 'Y' c'rf' g't.'V'j' q'o' cu'D'g't'p'q'w'nk

F weni"KO W"Kf qqt"P cxki cklp"y kj "Rctvleg" Hkngt "dcugf "O cr/O cvej kpi "qp"e"Uo ctvj qpg"; 45"
E0Cuej gt."E0Mguungt."O 0Y cpngtn"l HDVtqo o gt"
Rethqto cpeg'ej ctcevgtkucvlp"qhlhqqv'o qwpvgf "\ WRV/ckf gf "R Uu'cpf "qyj gt'tgrvgf "u{ungo u"; 4: "
Lqj p/QmhiP knuqp."Kicce"Unqi ."cpf "Rgygt"J @f gr'
Rgf gvtkcp"Kf qqt"P cxki cklp"d{ "ckf kpi "c" Hqqv'o qwpvgf "KO Wy kj "THE "Uki peniUtgpi vj "O gcuwgo gpw"; 57"
Cpvpkq"TOllo 2pgl "Tvk .Hgtpcpf q"Ugeq"l teplc."LOEctnu'Rtlqv"J qpqtcvq"cpf "Lqti g"KOI vgxctc"Tuqu
"
"
""C"O qf gn/Dcugf "Cr r tqcej "hqt"Y NCP "Nqecrk cklp"lp"Kf qqt"Retnkp "Ctgcu"; 64"
""ROCf f guuq."NODtwpq."TOI ctwhk"O ONqpi q."T0Tgucvq."C0Tqdwugmk"
""Cp"Kf qqt"Nqecvlp/Dcugf "Ugtxleg" Wulpi "Ceegu'Rqlpv"cu"Uki peniUtgpi vj "F cvc"Eqmgevqtu"; 74
""MHOMcq."KGO Ncq."LUON{ w'
"