WHERE_ROBOT

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Calcula a posição da ferramenta em relação ao sistema da estação a partir dos ângulos de junta, comprimentos de ligamento e das descrições do sistema da ferramenta (trelw) e do sistema da base do robô (srelb).

Calling Syntax

trels = where_robot(theta, trelw, srelb, L)

I/O Variables

`IN Double Array` **theta**: [theta1 theta2 theta3] [degrees degrees degrees]

`IN Double Matrix` **trelw**: Homogeneous Transformation Matrix 4x4

`IN Double Matrix` **srelb**: Homogeneous Transformation Matrix 4x4

`IN Double Array` **L**: [l1 l2] [meters meters]

`OU Double Matrix` **trels**: Homogeneous Transformation Matrix 4x4

Hypothesis

RRR planar robot.

Version Control

1.0; Leonardo da Cunha Menegon, Michel Kagan, Vinícius Nardelli; 01/05/2023; First issue.

Function

```
function [trels] = where_robot(theta,trelw,srelb,L)
```

Validity

```
    arguments
```

```
        theta (1,3) {mustBeNumeric, mustBeReal, mustBeFinite}
        trelw {functions.mustBeHomTransfR}
        srelb {functions.mustBeHomTransfR}
        L (1,2) {mustBeNumeric, mustBeReal, mustBeFinite} = [0.5, 0.3]
    end
```

Main Calculations

```
    wrelb = functions.kin(theta, L);
    brels = functions.tinvert(srelb);

    wrels = functions.tmult(brels, wrelb);
```

Output Data

```
    trels = functions.tmult(wrels, trelw);

end
```

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