WHERE_ROBOT

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Faz a matriz de translação homogênea entre a ferramenta do robo e a origem do sistema $(\theta, {}^{W}_{T}T, {}^{B}_{S}T, L)$

Calling Syntax

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

I/O Variables

`IN Double Array` **theta**: *Rotation angles* [$\theta_1\,\theta_2\,\theta_3$] [degrees degrees degrees]

`IN Double Matrix` **trelw**: *T relative to W* Homogeneous Transformation Matrix 4x4

`IN Double Matrix` **srelb**: *S relative to B* Homogeneous Transformation Matrix 4x4

`IN Double Matrix` **L**: *Joints distances* [$L_1\,L_2\,L_3$] [meters meters meters]

`OU Double Matrix` **trels**: *T relative to S* Homogeneous Transformation Matrix 4x4

Example

```
theta = [0 90 -90]
trelw = [.866 -.5 0 .4/sqrt(2); .5 .866 0 .4/sqrt(2); 0 0 1 0; 0 0 0 1]
srelb = [1 0 0 0; 0 1 0 0; 0 0 1 0; 0 0 0 1]
L = [.5 .3 .4]
trels = where_robot(theta,trelw,srelb,L)
```

Hypothesis

RRR planar robot.

Limitations

None

Version Control

1.0; Grupo 04; 2025/04/03 ; First issue.

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Function

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

Validity

Not apply

Main Calculations

```
    trel0 = kin(theta,L)*trelw;
```

Output Data

```
    trels = tinvert(srelb)*trel0;
```

```
end
```

```
trels =

    0.8660   -0.5000         0    0.7828
    0.5000    0.8660         0    0.5828
         0         0    1.0000         0
         0         0         0    1.0000
```

Published with MATLAB® R2024b