sensor definition

ColourCamera

Inputs

world: vector(real,3)->Colour

Outputs

image: matrix(Colour,960,720)

Local Variables

trans: vector(real,3)->Colour
plane: vector(real,2)->Colour

Constants

WIDTH: nat = 960, HEIGHT: nat = 720
mx: nat, my: nat
CM: matrix(real,3,4) = [|611.2014,0,321.56766,0; 0,611.63403,247.37758,0; 0,0,1,0|]

Equations

trans=={ op: vector(real,3) | op in dom(world) @ (|CM*hom3(op), world(op)|)}
plane=={ p: vector(real,3) | p in dom(trans) @ (|dehom2(p), trans(p)|)}
forall px: nat, py: nat | 1<=px/\px<=WIDTH/\1<=py/\py<=HEIGHT @ image(px, py)==plane(mx*px, my*py)