FSE 100

Demonstration

YouTube link https://youtu.be/KUmhD3jSeaw

A picture containing indoor, projector

Description automatically generated

A picture containing indoor

Description automatically generated

A picture containing indoor, person

Description automatically generated

A robot on a table

Description automatically generated with medium confidence

MATLAB Code

global key

InitKeyboard();

%brick.SetColorMode(1, 2); % set sensor 1 to colorCode

startMoving = 0;

while 1

pause(0.001);

distance = brick.UltrasonicDist(4);

color = brick.ColorCode(1);

touch = brick.TouchPressed(2);

switch key

case 'a' % a starts auto-driving

while(startMoving == 0)

distance = brick.UltrasonicDist(4);

color = brick.ColorCode(1);

disp(distance)

touch = brick.TouchPressed(2);

brick.MoveMotor('A',50);

brick.MoveMotor('D',50);

if (color == 5) % Red Stops For 4 Seconds

brick.StopMotor('A');

brick.StopMotor('D');

pause(4);

brick.MoveMotor('A', 50);

brick.MoveMotor('D', 50);

pause(1);

brick.MoveMotor('A', 50);

brick.MoveMotor('D', 50);

distance = brick.UltrasonicDist(4);

disp(distance);

touch = brick.TouchPressed(2);

elseif (color == 3) % Green Switches to Manual

pause(0.001)

brick.StopMotor('A');

brick.StopMotor('D');

startMoving = 1;

elseif (color == 2) % Blue Switches to Manual

brick.StopMotor('A');

brick.StopMotor('D');

startMoving = 1;

distance = brick.UltrasonicDist(4);

disp(distance);

touch = brick.TouchPressed(2);

elseif color == 4

brick.MoveMotor('A',50);

brick.MoveMotor('D',50);

end

if (distance > 50)% turn right

pause(0.1);

brick.MoveMotor('A', 30);

brick.MoveMotor('D', -30);

pause(1.2);

brick.StopMotor('A');

brick.StopMotor('D');

pause(0.1);

brick.MoveMotor('A',50);

brick.MoveMotor('D',50);

pause(2);

distance = brick.UltrasonicDist(4);

disp(distance);

pause(0.1);

touch = brick.TouchPressed(2);

end

if touch % Reverses

pause(0.1);

disp('Hit');

brick.MoveMotor('A',-30);

brick.MoveMotor('D',-30);

pause(0.2);

brick.MoveMotor('A',-30);

brick.MoveMotor('D',30);

pause(1.3);

distance = brick.UltrasonicDist(4);

disp(distance)

if distance < 40 % If wall is present turns left

brick.MoveMotor('A',-30);

brick.MoveMotor('D',30);

pause(1.3);

distance = brick.UltrasonicDist(4);

disp(distance)

touch = brick.TouchPressed(2);

else

brick.MoveMotor('A',-30);

brick.MoveMotor('D',30);

pause(1.3);

distance = brick.UltrasonicDist(4);

disp(distance)

touch = brick.TouchPressed(2);

end

end

end

case 'q'

disp('Quit Program');

brick.StopMotor('A');

brick.StopMotor('D');

break;

case 'uparrow'

brick.MoveMotor('A',30);

brick.MoveMotor('D',30);

case 'downarrow'

brick.MoveMotor('A',-30);

brick.MoveMotor('D',-30);

case 'leftarrow'

brick.MoveMotor('A',-30);

brick.MoveMotor('D',30);

case 'rightarrow'

brick.MoveMotor('A', 30);

brick.MoveMotor('D', -30);

case 'p'

brick.StopMotor('A');

brick.StopMotor('D');

case 'l'

brick.MoveMotorAngleRel('C',20,30,'Brake');

case 'd'

brick.MoveMotorAngleRel('C',20,-30,'Brake');

case 'r'

startMoving = 0;

end % end of switch statement

end % end of while loop

CloseKeyboard();