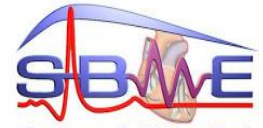**Faculty of Engineering**
Cairo University

Systems & Biomedical Engineering Department

Final Assessment Research

Project

SUBMITTED TO:

DR: AYMAN M. ELDEIB

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How to Run:

- *Decompress the zipped file **SBE306B_Spring20_Project_Group_03.zip.***
- *Put the cpp file **SBE306B_Spring20_Project_Group_03.cpp** inside the folder generated from the unzipping **SBE306B_Spring20_Project_Group_03.***
- *Open the terminal and run the command:*
  `g++ -o main SBE306B_Spring20_Project_Group_03.cpp imageloader.cpp glm.cpp -lGL -lglut -lGLU -lm`
- *Then run:* `./main`

Loaded objects:

we used 4 objects, Ball, Football goal, dumbbell and Bench.

Results:

1. Drop menu:

Here we made two submenus, one to choose the texture mapping acting on the floor and the other to choose the animation you want to display
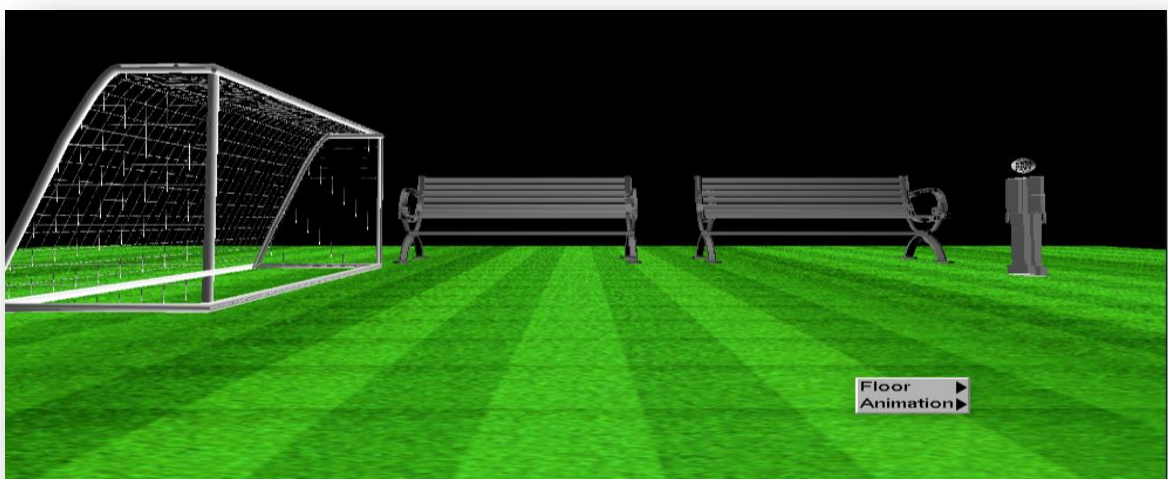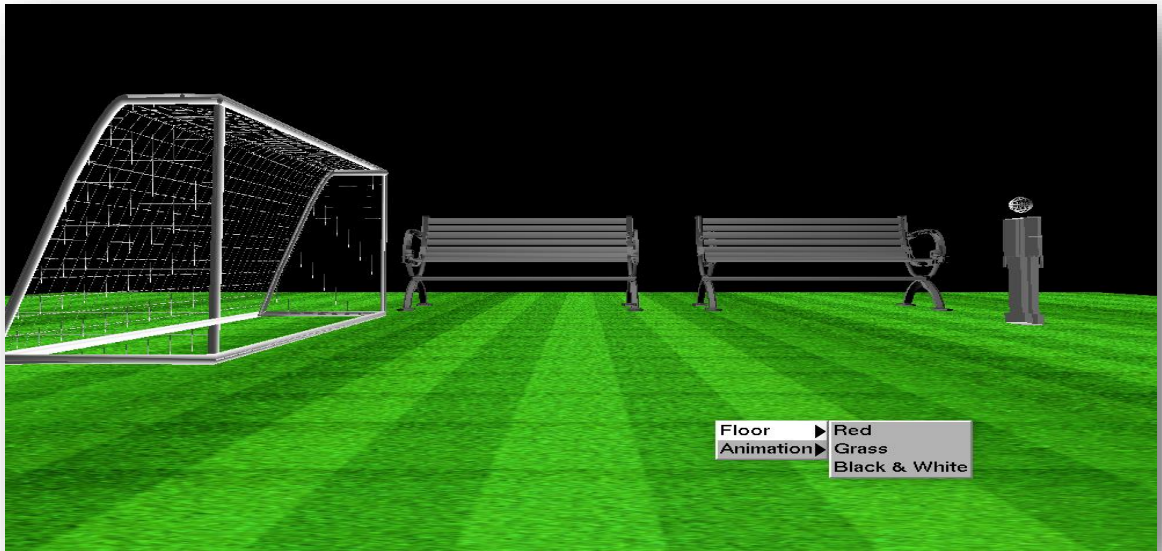

Figure 1

2. *Texture Mapping Options:*

Figure 2

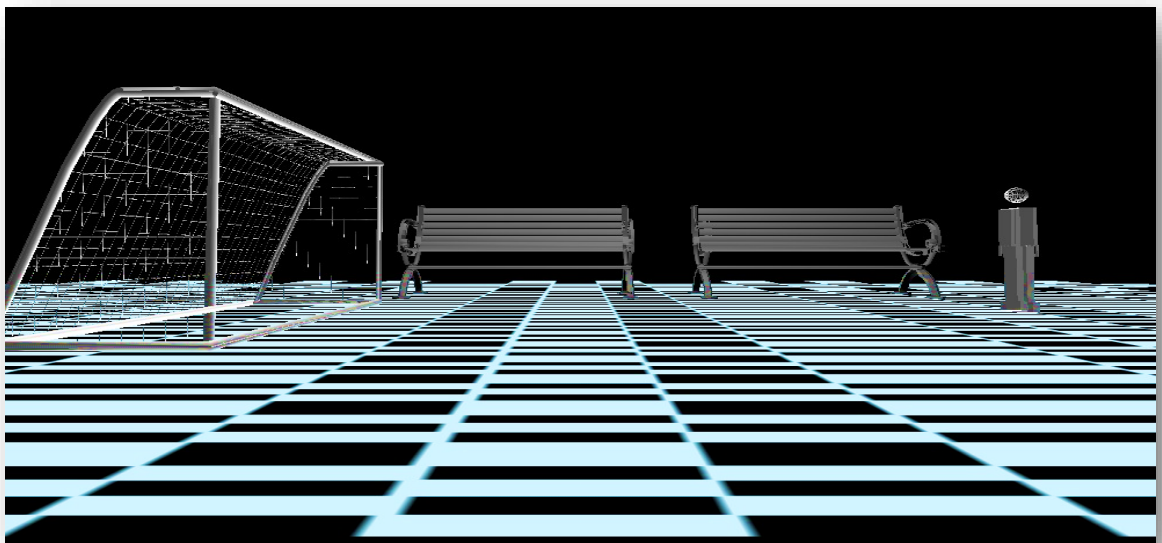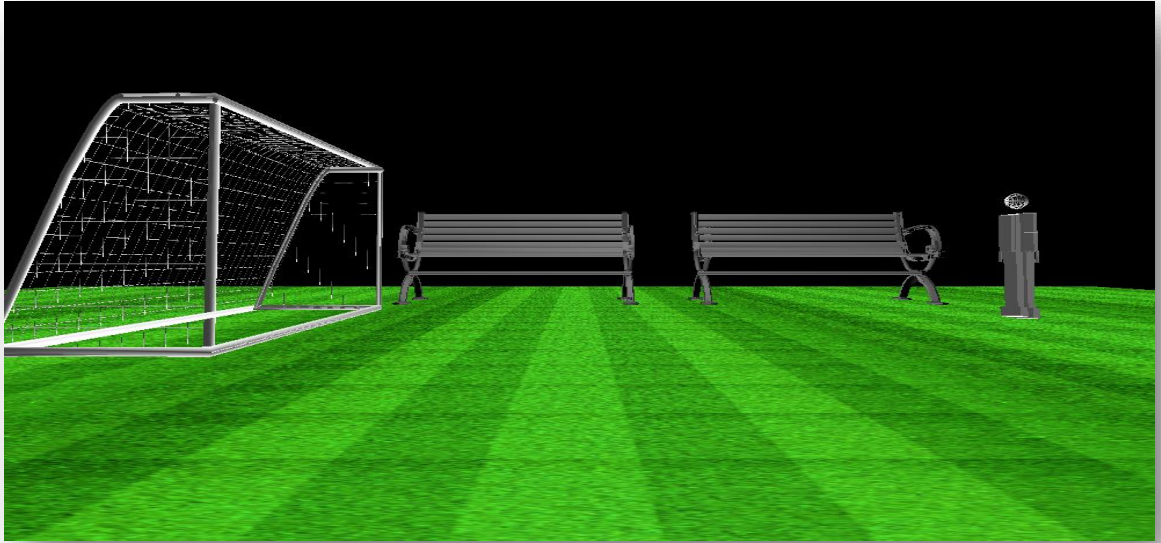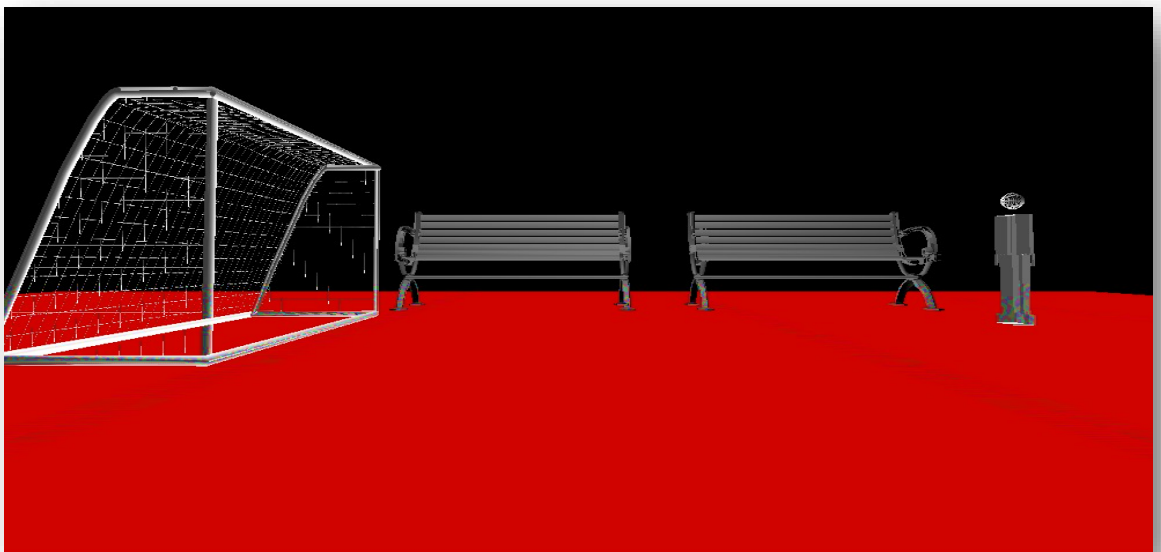- *This is when we choose Black & White*

Figure 3

- *This is when we choose Grass*

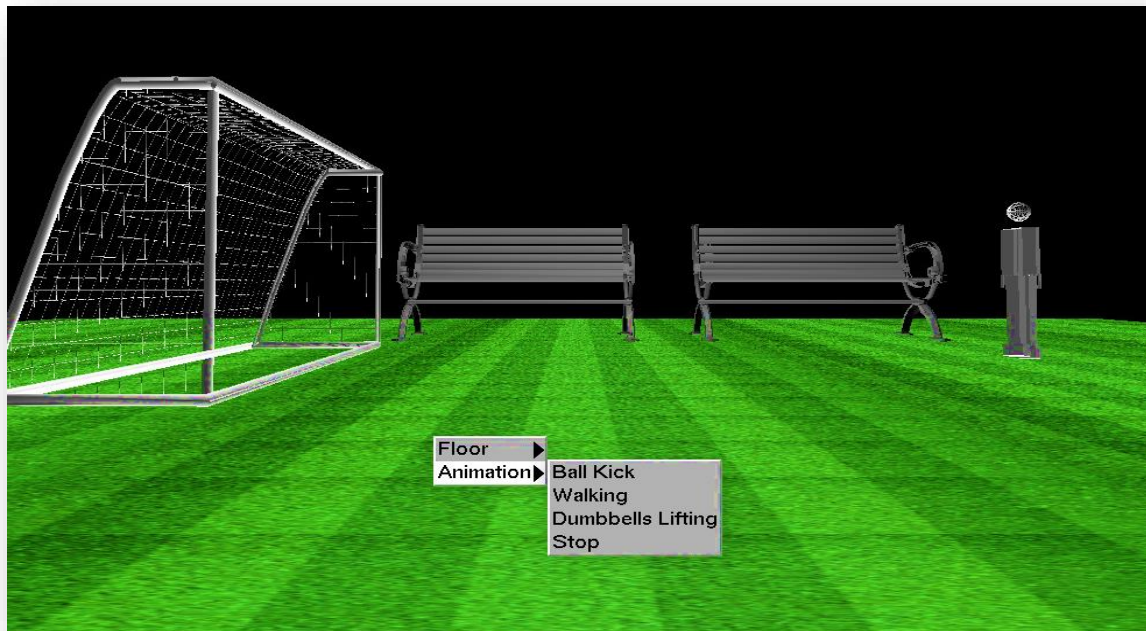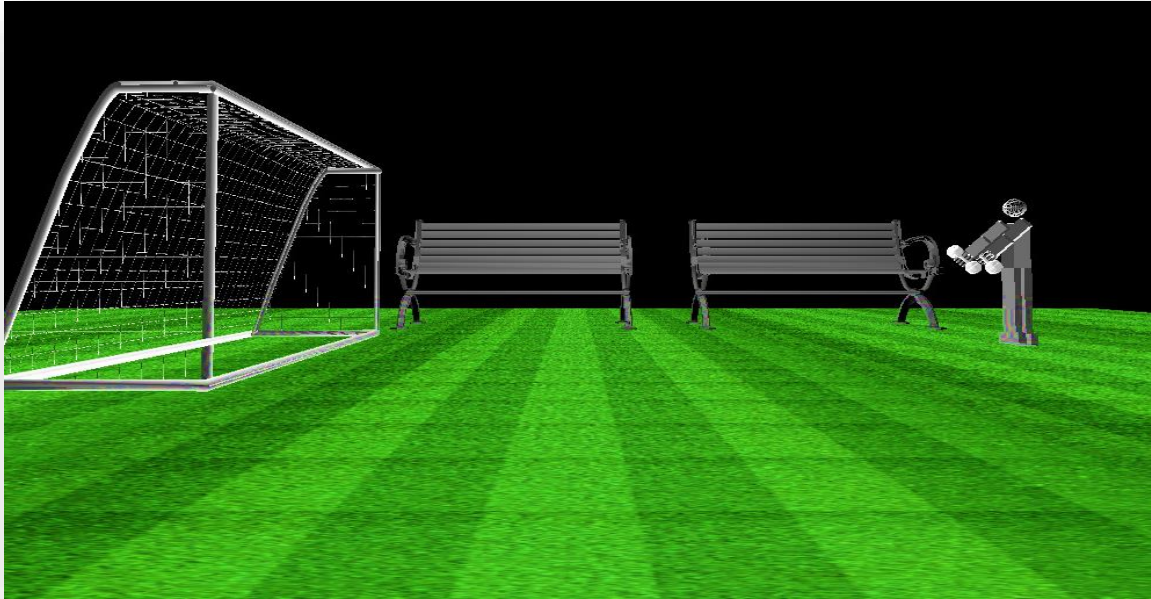*Figure 4*

- *This is when we choose Red*

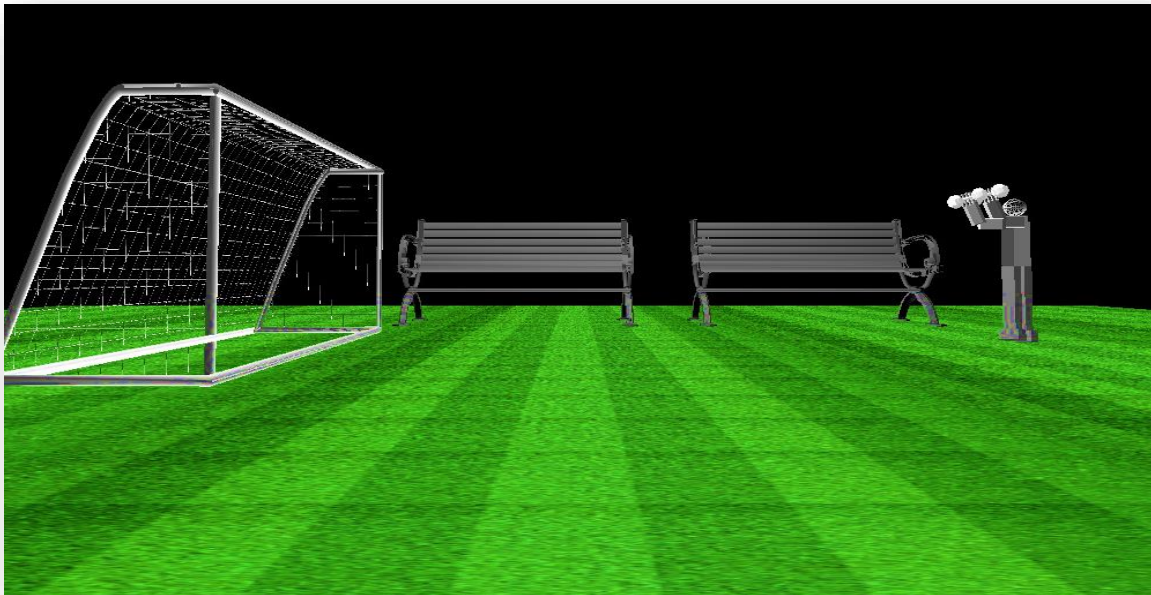*Figure 5*

3. Motions:

Figure 6

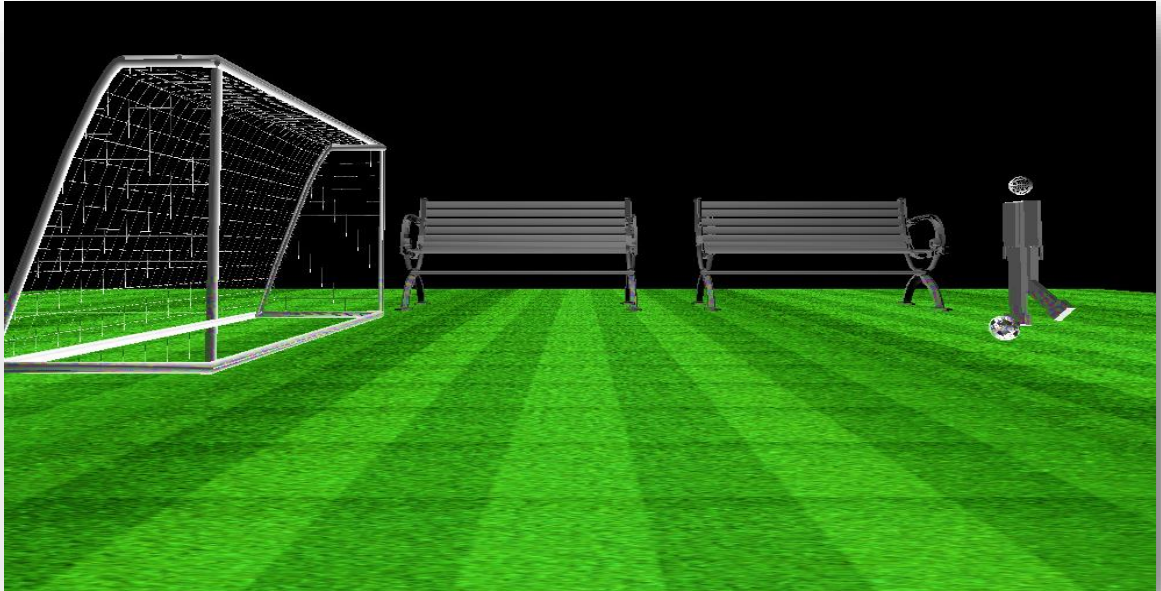- *Lifting Dumbbells*
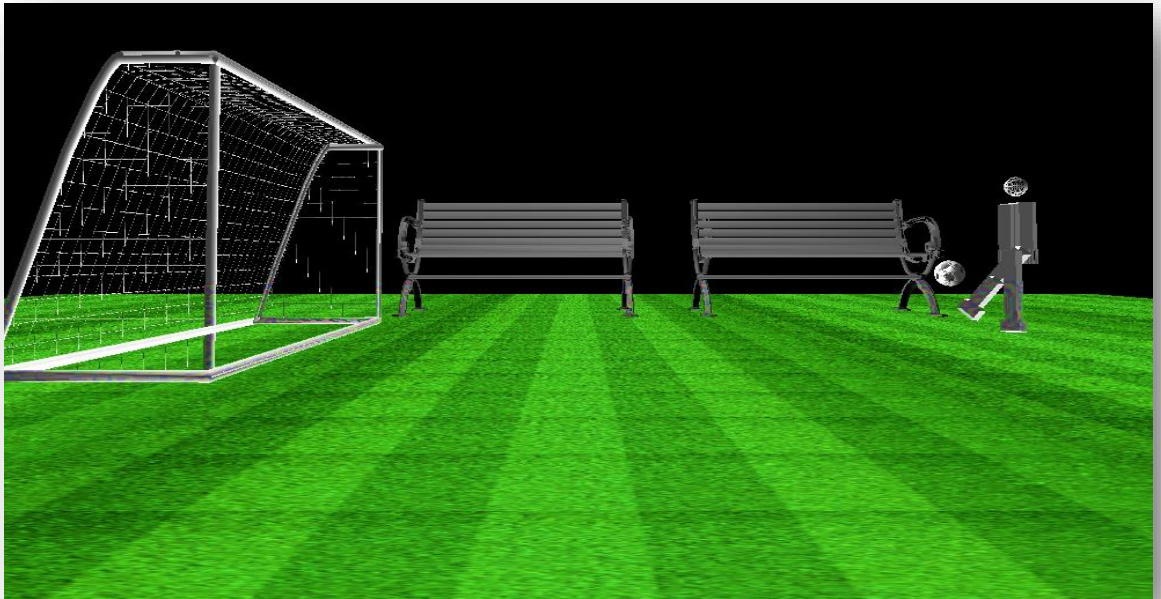

Figure 7

Figure 8
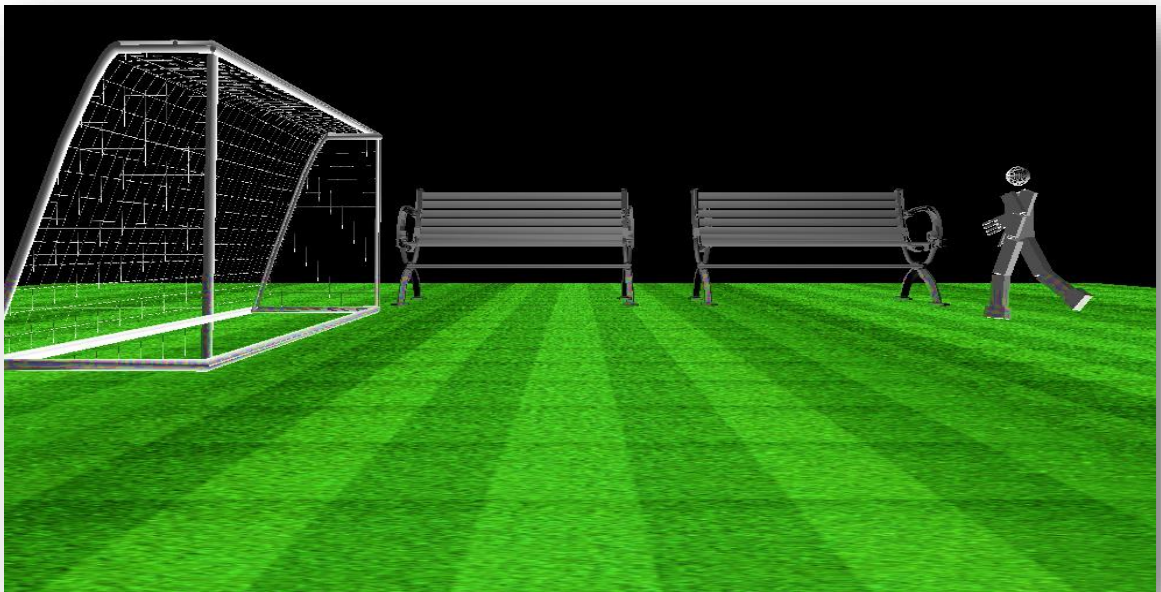
- *Kicking the Ball*

Figure 9

Figure 10

- *Walking*

Figure 11

Figure 12

Application of this Project in the Biomedical Fields:

We can use it in rehabilitation.

Issues:

- *We faced some problems at the first to create animation and the robot was move in wrong way and we solved it after watch the section video.*
- *The lighting was not good at all and we change the constants that control the lighting and solve it.*
- *The football goal was moving wrong when we move the camera backward or forward and it was a mistake in the position of the object in the display function.*