Faculty
of Physics
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C# project: LEGO® analogy
Project MEGO

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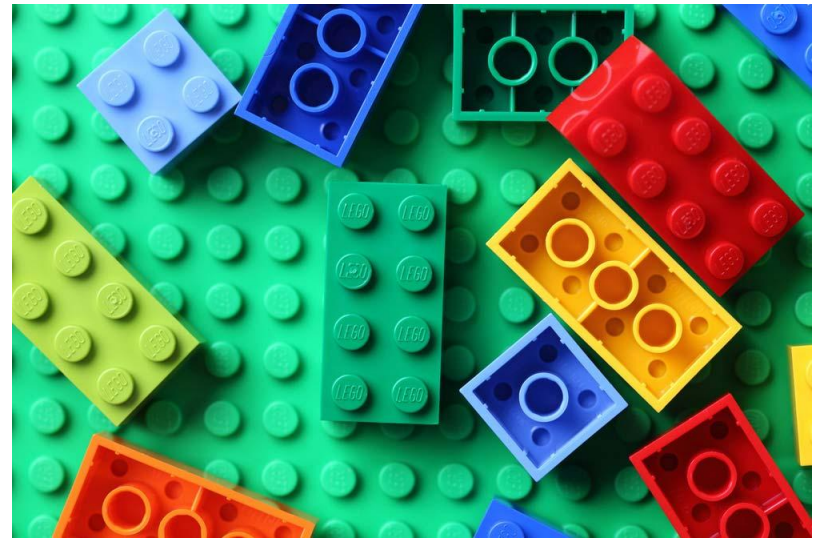of Technology

The main idea

- Application written in Unity environment

- Creative game

- MEGO: interactive possibility of playing with LEGO without real blocks

- Designing tool

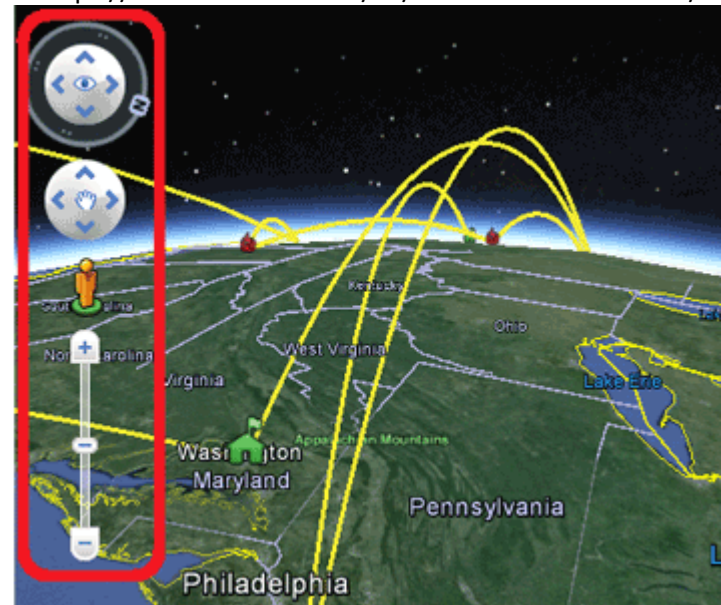- Great fun for kids and adults

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Functionality

- 3D space for building shapes

- Different blocks designs

- Blocks size dependent on smallest possible MEGO brick

- Possibility to change colours of blocks

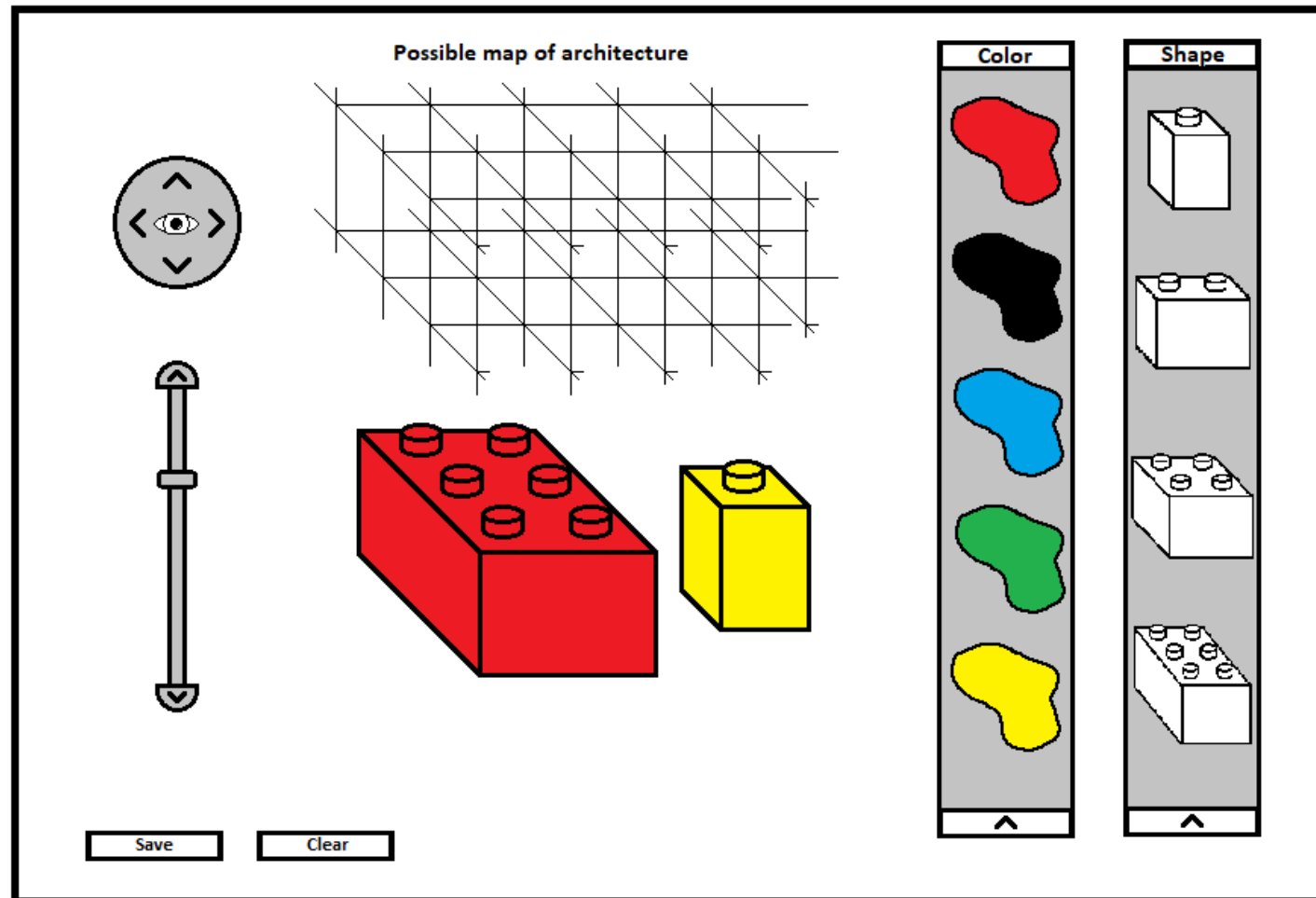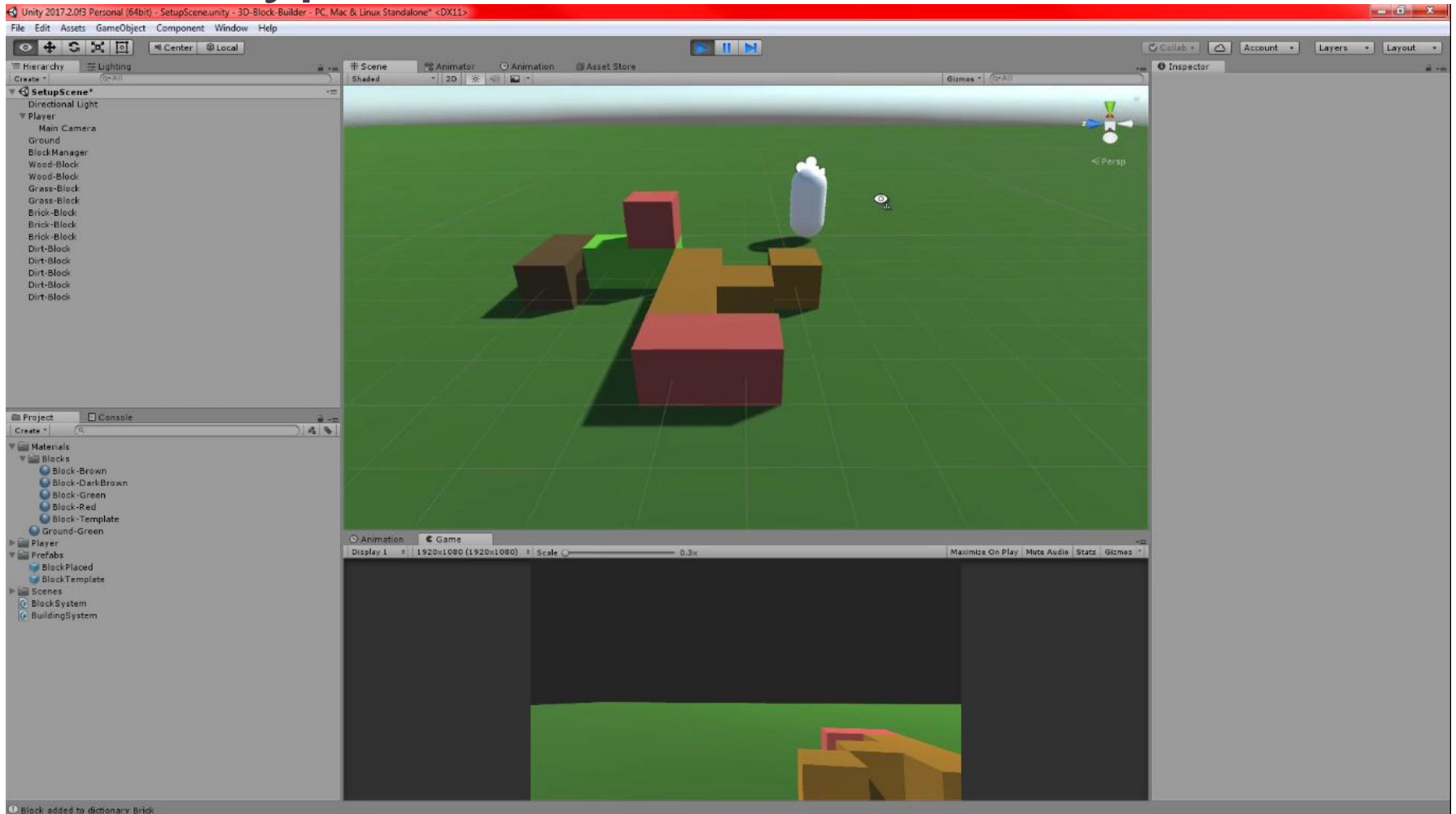- Every angle view and zooming of made project

https://cdn.britannica.com/48/182648-050-6C20C6AB/LEGO-bricks.jpg

https://www.google.com/earth/outreach/images/tutorials_tb_17_map_controls.gif

Design

Prototype

https://www.youtube.com/watch?v=0WZUgUtBxcg

Interesting knowledge

Mouse pointing in 3D space:

```
RaycastHit buildPosHit;
if (Physics.Raycast(playerCamera.ScreenPointToRay(new
Vector3(Screen.width / 2, Screen.height / 2, 0)), out buildPosHit, 10,
buildableSurfacesLayer)) {
        Vector3 point = buildPosHit.point;
        buildPos = new Vector3(Mathf.Round(point.x), Mathf.Round(point.y),
        Mathf.Round(point.z));
        canBuild = true;
} else {
        Destroy(currentTemplateBlock.gameObject);
        canBuild = false;
}
```

Future upgrades

•Integration with real life game

•Introducing physics (what do we study it for?)

•Different complicated shapes of elements

•Designing own shapes of elements

•Saving project in STL format for 3D printing

References

•Unity Tutorial - 3D Block System - Pt 2: Tutorial – YouTube
https://www.youtube.com/watch?v=0WZUgUtBxcg

•UnityScripts/3D Block System Tutorial at master · c00pala/UnityScripts
https://github.com/c00pala/UnityScripts/tree/master/3D%20Block%20System
%20Tutorial

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Thank you for your attention

Have a nice day ☺