Terrafarm - Final Release

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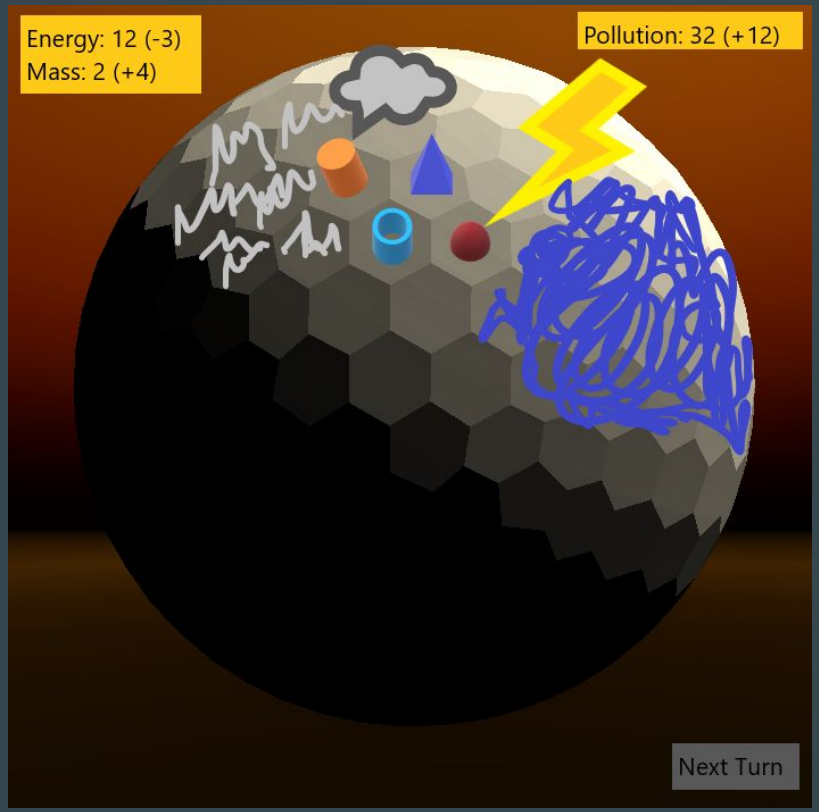
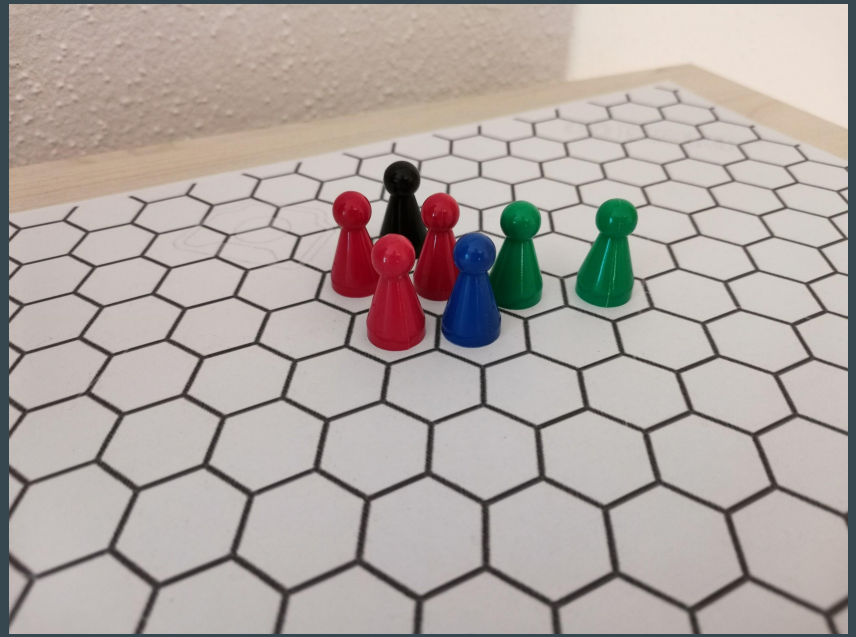
Progression

Concept Art

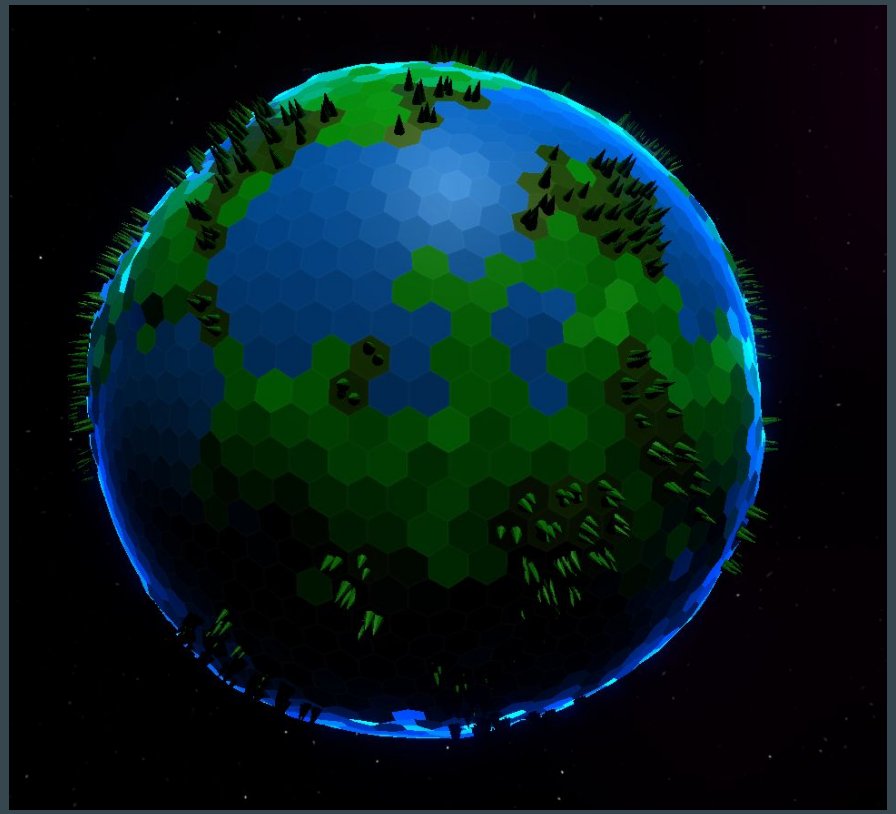


Physical Prototype

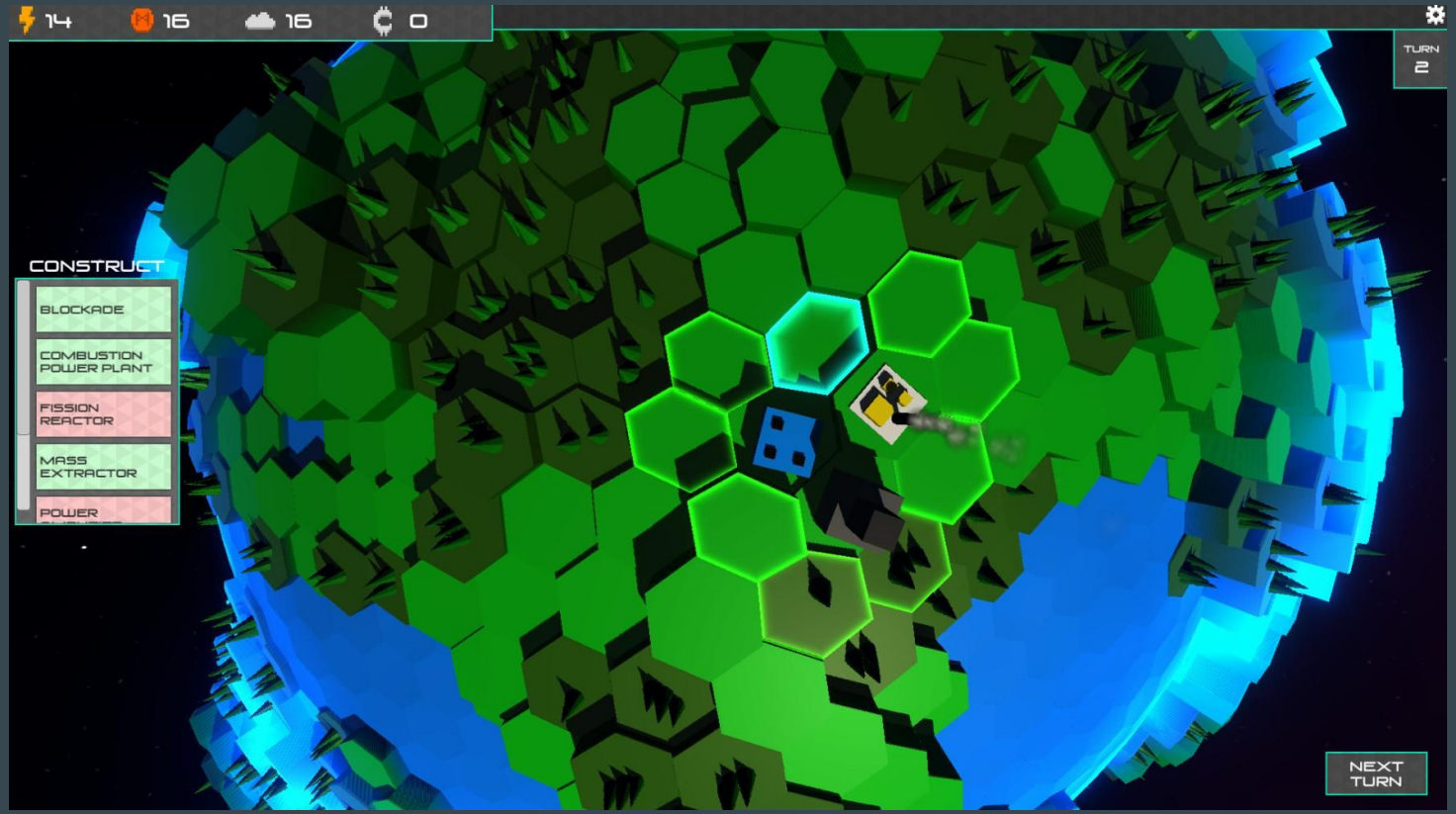


Physical Prototype

Interim Demo

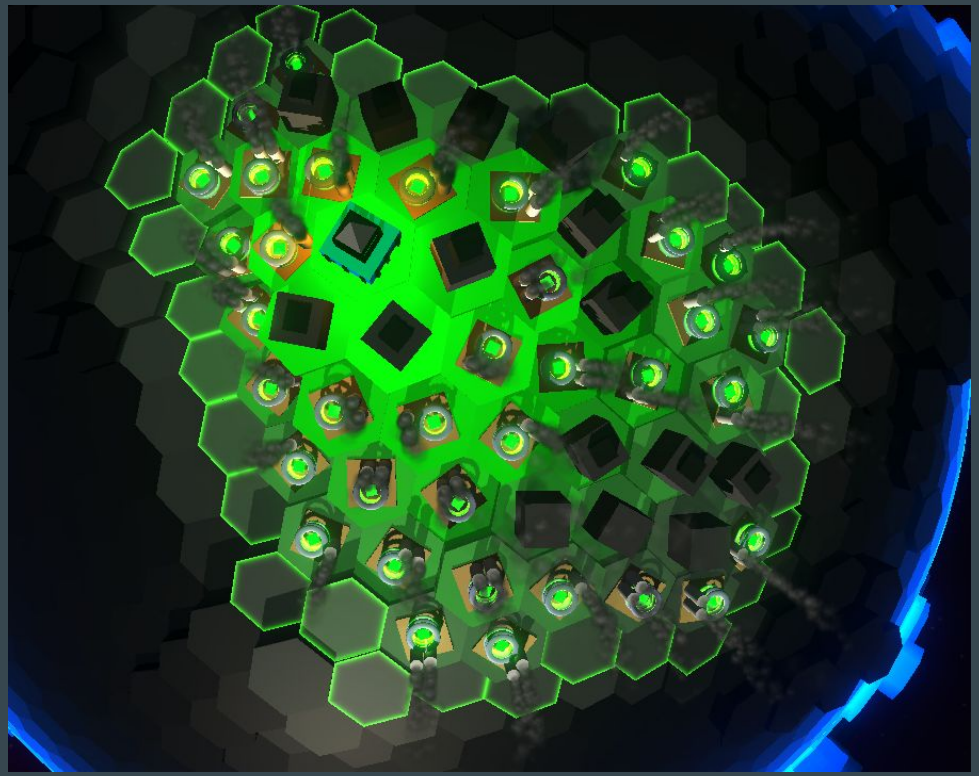


Alpha Release



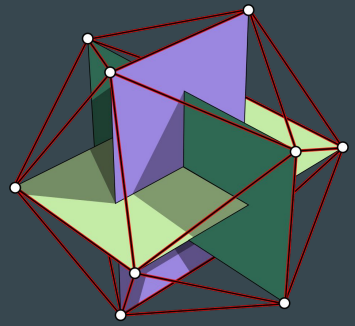
Final Result

- Procedurally generated world
- 9 building types
- 5 climate effects
- 5 planet types featuring 10 different biomes
- Playable tutorial

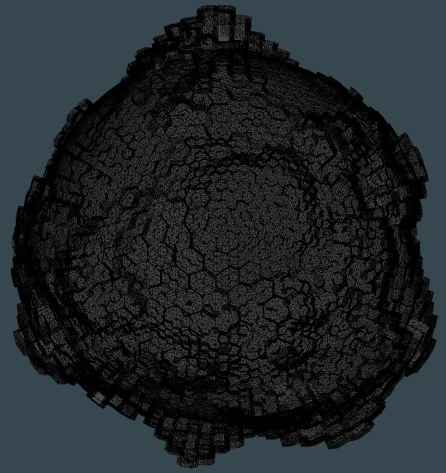


Technical Details

Technical Details - World



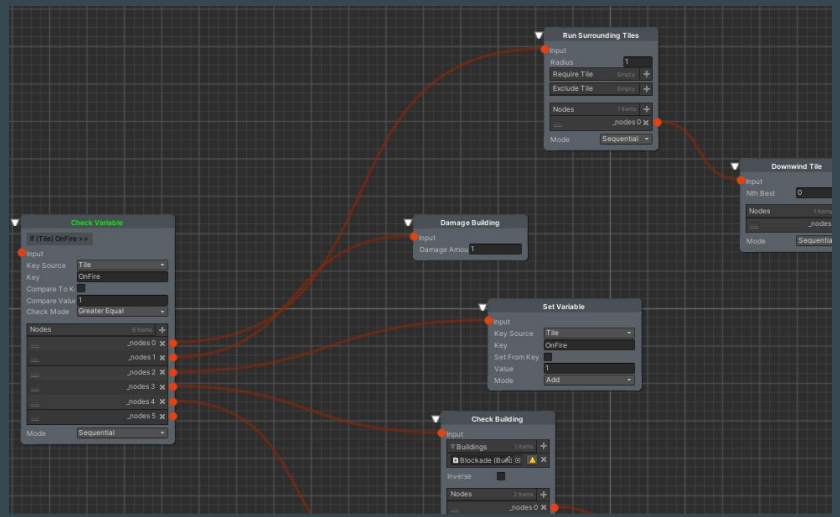
- Generate icosahedron points by using 3 golden rectangles
- Truncate triangles, normalize to sphere
  - Repeat
- Keep track of triangles so we can later “extract” hexagons
- Connect adjacent hexagons with a quad
- All vertices need to be unshared!
  - Used for flat shading, UV animations, etc
- Assign biomes with simplex noise and height



- All tile animations, colors and effects are achieved by using UV read in a shader
- Use ECS to render biome objects (if any), as there can be a lot

Technical Details - Climate Effects

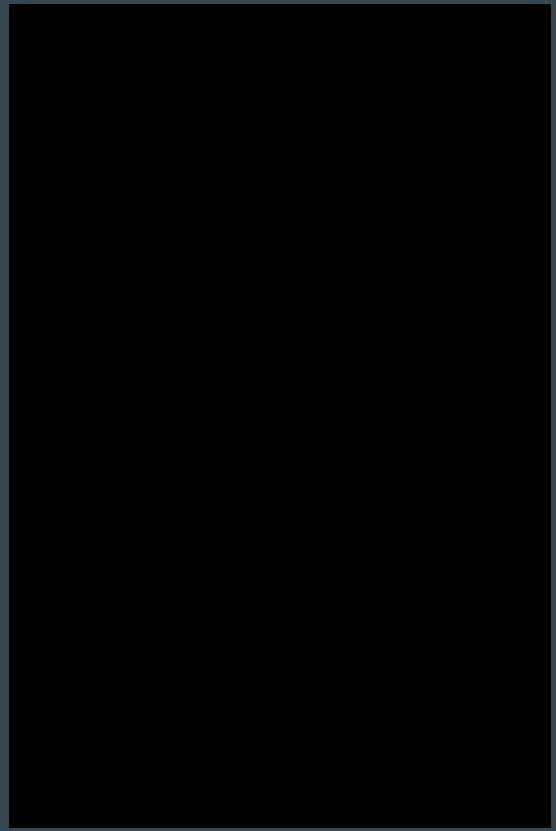
- Implemented using a node editor
  - Uses XNode
- All nodes run asynchronously
  - Can select if a node should “wait” or not



- ChanceNode
- CheckBuildingNode
- CheckSurroundingTilesNode
- CheckTileTypeNode
- CheckVariableNode
- CustomFunctionNode
- DamageBuildingNode
- DebugNode
- DestroyObjectNode
- DownwindTileNode
- ModifyAdvanceCounterNode
- PanCameraNode
- PlayAudioNode
- ReadBlackboardNode
- ReadGlobalNode
- RunSubNodesNode
- RunSurroundingTilesNode
- SetTileTypeNode
- SetVariableNode
- SpawnObjectNode
- WaitNode
- WriteBlackboardNode
- WriteGlobalNode

Technical Details - Buildings

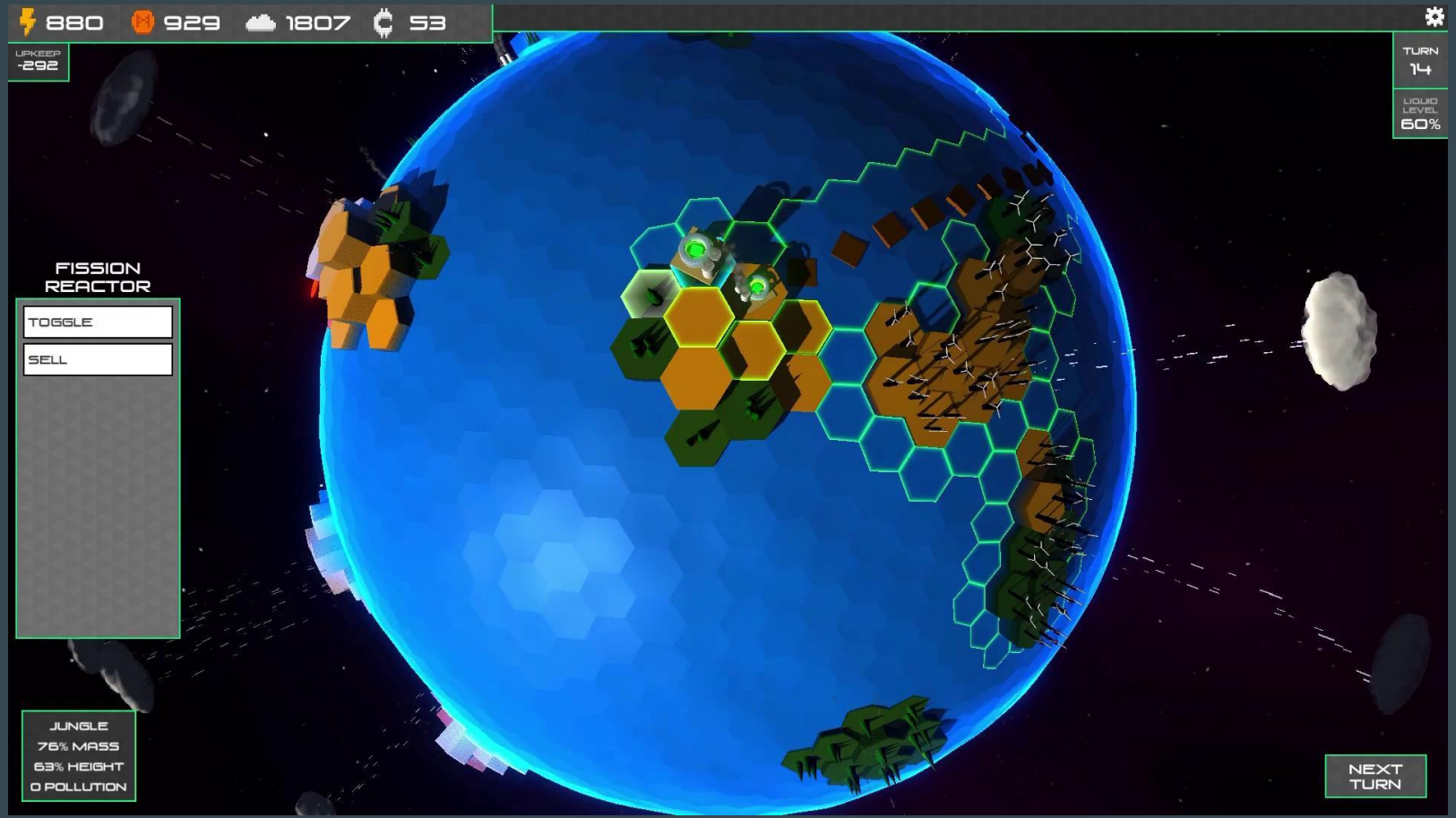
- Made up of a list of building processor functions
- Buildings have an asynchronous update function
  - Calls asynchronous run functions of building processors
- Have nice editors to catch errors and iterate quickly



Technical Details - Turn Update

- Lots of async / await + event driven programming
- Being able to tune how long something takes is a must!
- Turn order
  - Run all tile graphs
  - Run all buildings
  - Call events -> also use async / await
  - Only if everything is 100% completed, re-enable user control

Thanks for listening!


880
929
1807
53
UPKEEP
-292
TURN
14
LIQUID LEVEL
60%
FISSION REACTOR
TOGGLE
SELL
JUNGLE
76% MASS
63% HEIGHT
0 POLLUTION
NEXT TURN