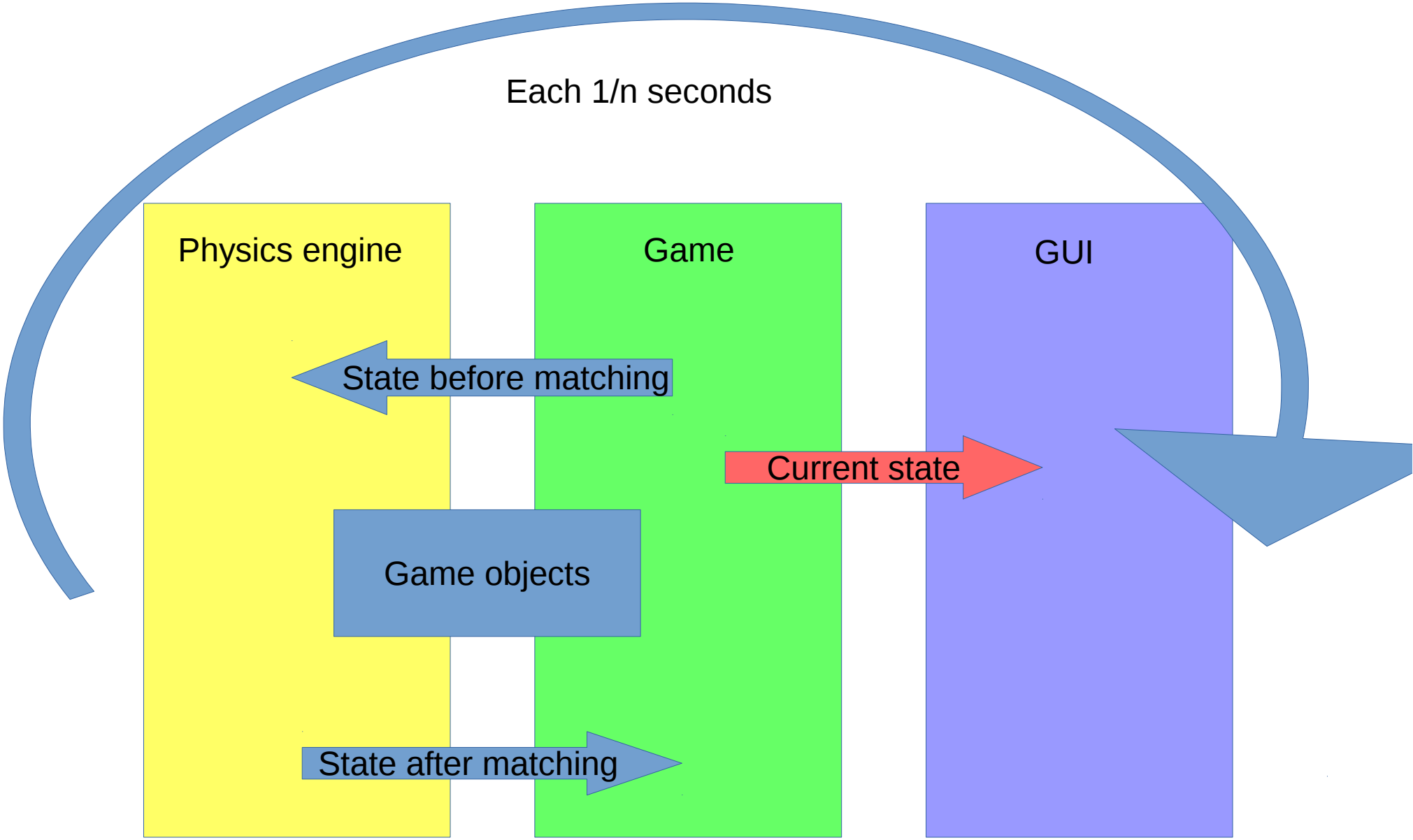
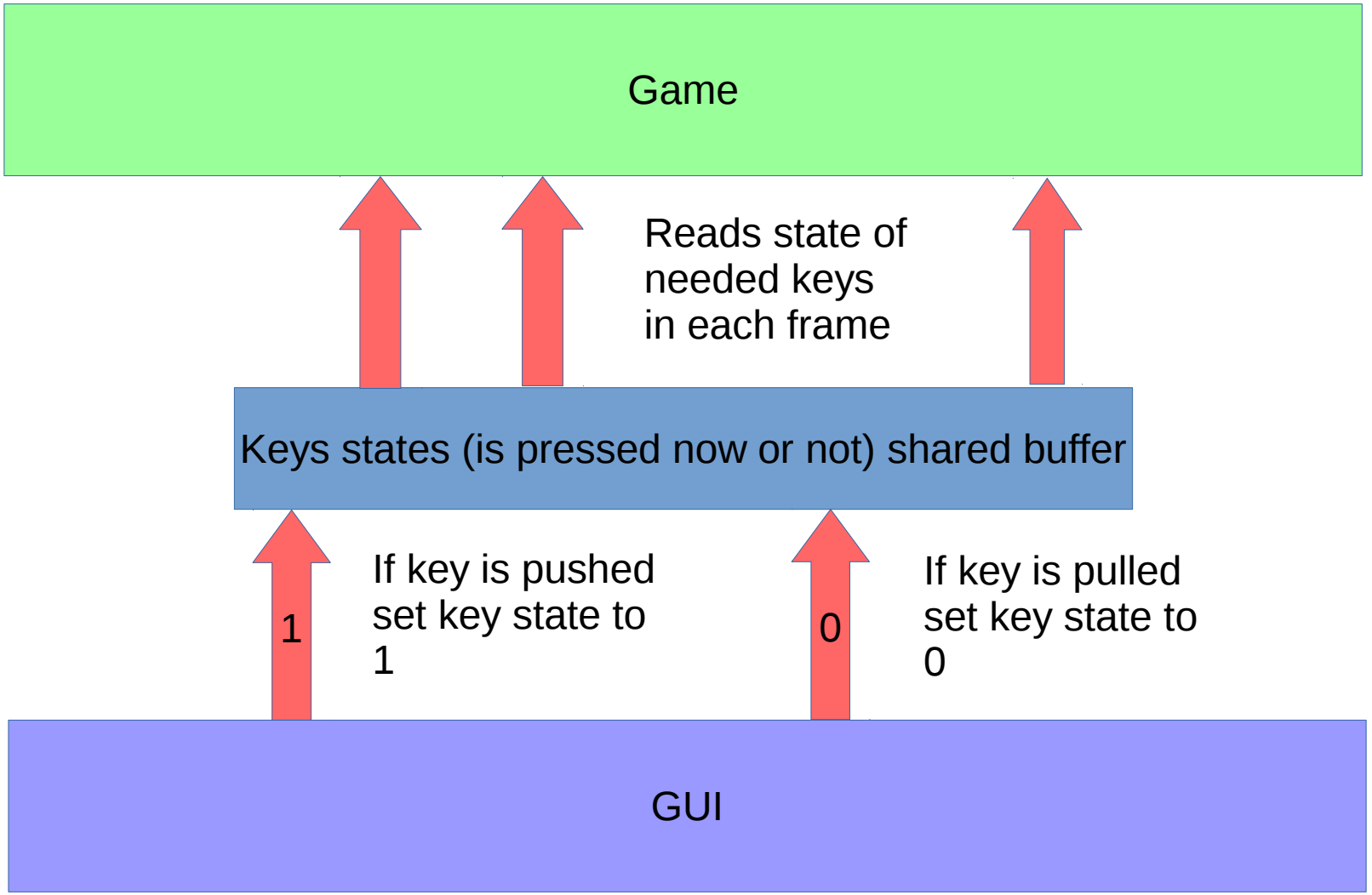
Our game project

- Modules of the project
- Interaction with player
- Physics engine structure
- Unit structure
- Collision matching
- Collision events
- GUI

Modules of the project



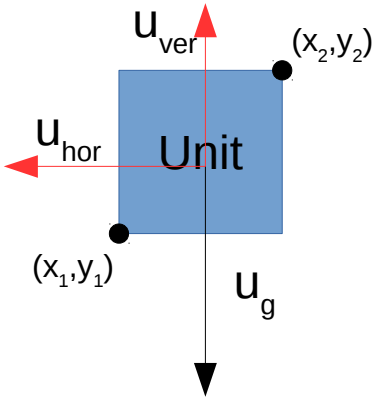
Interaction with player



Physics engine structure

- World represents engine functionality.

Unit structure

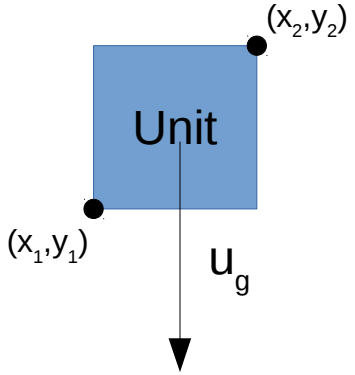


$$[\vec{u}] = \frac{points}{frame}$$

Size and position of unit can be described by two points: left bottom (x_1,y_1) ant top right (x_2,y_2).

For describe current state of the unit in the world it's enough to have a two current speed vectors: vertical and horizontal. Measure of speed in our game context is points per frame. Each frame = n seconds. Also it is speed given by gravitation, and it always force unit.

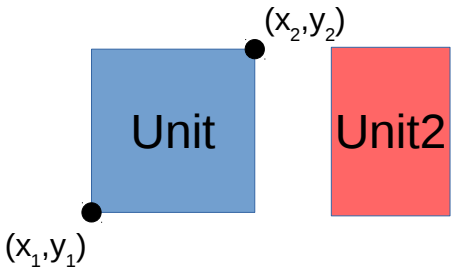
If unit is alone with no other units, it has only vertical gravitation speed, witch make unit move down.



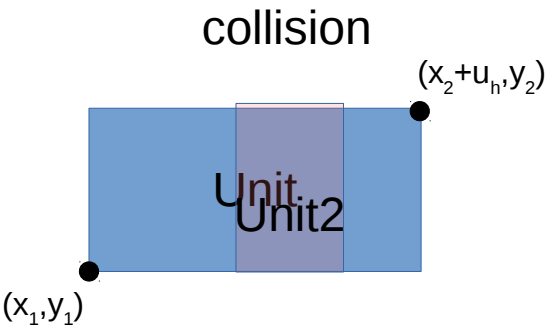
If two blocks bumped, block with lower priority takes speed of block with higher priority. So each unit should have priority. Units of ground and walls normally have the largest priority.

Collision matching

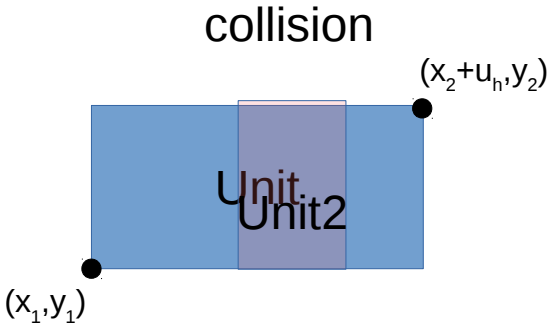
1.



2.



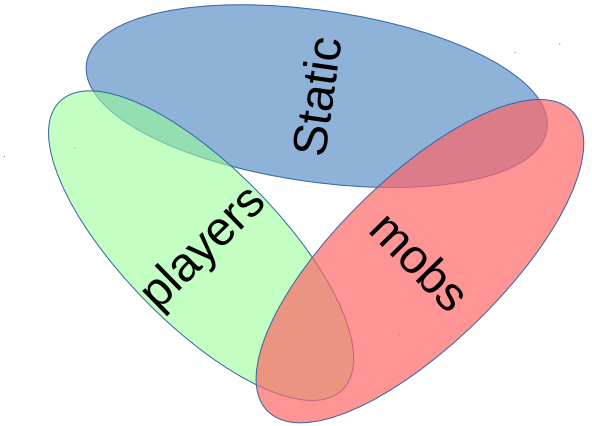
3.



Try move unit2 according its speed. If it resolve collision, match collisions for y moving. For unit and mark unit2 as moved. Else find point of touch and resolve collision by changing of positions and speeds.

Collision matching

- There are three sets of objects: static, mobs and players.
- Collisions are matching only between different sets.



Collision events

- Each collision cause changing of speeds and positions of units