**Delayed Features**

1. Base Vehicle Type: Motorbike

Motorbikes weaving in-between lanes and all its interactions with other units   
Outstanding Bugs:

* Motorbike when in-between lanes, moves back into the lane, instead of remaining in-between lane while another vehicle is in its place
* Motorbike changing lane – issue when the motorbike that is in-between lane is the one that is disabled while the one in the middle wants to change lane
* Jumper interaction and vaulter interaction with motorbikes. If it is on top of the motorbike and it shifts in-between lanes. Might need to stick the object to the top of vehicle.
* Multiple jumpers/vaulters on a motorbike – repositioning how?

2. Other Vehicle Types: Race Car, Garbage Truck, Road Sweeper

3. Environment effect: Night-time

Limited vision on road. Only light sources are sidewalk lamps (full vision on sidewalks), and headlights from vehicles (light up 2 grids away). No light on the divider. No light on top of vehicles.

**Tasks**

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| **Description** | **Done** |
| Call-in vehicle and air drop vehicle  Setup:   * VehicleSpawner class handles spawning in the staging vehicles for calling in or air dropping vehicles. Spawn one of each and hold in a list. * Clicking button opens a UI to select the car * Set selected\_skill to call-in/airdrop * The UI is a full panel that is non-clickthrough, with the 3x2 buttons on it, and it has a X button at top-right. * User can exit the UI by clicking X button, clicking outside the panel, clicking the call-in / air-drop button again. Exiting UI will drop skill from selected\_skill. * When the car button is clicked, grab the unit referenced from the spawning class and create the Skill. Save the skill in tmp holder. * The usercontrol will now be in location selector state. This will generate red boxes or green boxes when moused-over spots to drop the vehicle. Red boxes will indicate unable to drop and when clicked, will not have any reaction. Green boxes are ok to drop and when clicked, it will translate the click pos to gridcoords and add to the skill. This will then trigger the skill button highlight and save to the dictionary. * Call-in vehicle lane validity is based on whether there is any existing called-in vehicle for that lane that has not appeared. It will replace the vehicle in that spot if the vehicle has not moved into view. I.e. called-in immediately. If not, it will follow directly behind vehicles like truck/bus. * Air-drop vehicle grid validity have to check for its entire vehicle length whether dropping in is possible, with no other vehicle in the way. Dropping in will kill any mobs. * The CallInVeh and AirDropVeh classes that implements Iskill will execute the shifting of the unit to the targeted location, rotate as necessary, and set the move direction. |  |
| Skill Orbs   * Generation and display. Display yellow squares based on grid, to a max of 10. * Each turn generates 1 orb. Each kill generates 1 orb. |  |
| Skill Buttons   * The buttons will become disabled if there is insufficient orb available. It will turn grey and be unclickable. * On begin of player’s turn, trigger a re-check on the buttons. * When a skill is selected, reduce orb by making them grey. Do not trigger re-check. * When a skill is highlighted, keep the grey orbs and trigger a re-check on the buttons for other skills. * When cancelling a skill, turn the grey orbs to yellow and trigger re-check. * Don’t disable a button due to lack of skill orbs if it has been highlighted. |  |
| Health Orbs   * Start with 10 health. Each enemy that reaches the end reduces health based on damage |  |
| Add a game log box to keep track of logged interactions in the game, used for dev now and will be refined for player in future.  Player can see their past actions and receive feedback on their actions. |  |
| After skill is targeted onto the unit, add an indication to show that unit is targeted by what skill |  |
| Skill Info button – click to bring up a full panel UI (non-clickthru) that describes each skill. Button is a small “?” button at top left of skill bar panel |  |
| Airdrop vehicle – make it such that it always ignores incoming vehicles in that lane. I.e. it will overlap vehicles, but is unseen. It will block call-in vehicles too, if it is a bus. |  |
| Add level number and kills number info on UI |  |
| Call-in vehicle – if there is a vehicle on the spawn spot, if that vehicle has not entered the playable area, it should replace the vehicle. I.e. remove the spawned vehicle and replace with the called in vehicle. |  |
| Right Clicking will exit any InfoPopup selection, and any skill selection, or skill targetting, and locator mode. |  |
| Indication of Enemy killed after a round – when enemy dies, it leaves behind a UI indicator that is of lowest hierarchy on the canvas. Indicator is a small skull icon. It will remain through the player’s next turn and will then be destroyed upon ending turn, thus it shows enemies killed in the previous round. |  |
| Indicator to show what phase it is in – Enemy, Vehicle, Player, Skill |  |
| Endless – easy, medium, hard. No more Standard mode.  Easy = slower start with easier mobs (level 1, 2mobs)  Medium = accelerated start with tougher mobs (level 10, 2mobs)  Hard = accelerated start with more tougher mobs (level 10, 3mobs, veh can destroy) |  |
| Brute to take pre-turn action of checking and knockbacking vehicle in front of it. All other enemy will act on the post brute action.  Brute should not be able to knockback onto another brute, unless said brute is 1 HP |  |
| Multiple new enemies at same time, should show all new enemies and not overwrite |  |
| To readjust all enemy collider to fit its sprite |  |

**Tasks 2**

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| **Description** | **Done** |
| Display of skill markers for multiple actions issued onto the same unit, it overlaps uglily. Unit will hold a count for number of skills assigned to it. SkillManager uses this to position the icon on target  When a skill is untargeted, usercontrol calls all skill manager 1 by 1 to recheck and reposition icon on target. |  |
| Skill markers to be green instead of yellow |  |
| Make skills trigger 1 by 1 with delay so the effect can be processed by the player, and not all happening at the same time |  |
| Sniping enemy does not leave a killed indicator and does not add skill orbs and does not add to a kill count. Enemy should have its own destroy self, that does what is done when collided. |  |
| Skill buttons should all be disabled in between player turns. Prevent player from using skill before his turn. |  |
| Positioning of units when atop vehicles. Influenced by yAdjustment.  When multiple units on top, do a very small spread within max left and right (max left and right determined by vehicle name (and spread only depends on number of units with yAdjustment = 3) i.e. doesn’t affect flatten. Normal adjustment still apply for units below. I.e. 3 units on top will spread left to right within max left and right, and 2 flatten below should spread as per normal spread. |  |
| Experiment with brightening all enemy sprites to improve visibility |  |
| Add visual effects for sniping, for boosting and for disabling |  |
| Bloat added death explode poison cloud effect, that covers 1 grid in radius.  Updated effect of bloat, that stuns all vehicles within 1 grid radius for 1 turn |  |
| Vehicle airdrop animation to play it dropping from top of the screen |  |
| Indication of damage taken after an enemy round  Add simple pulsing red |  |
| Hard mode – to make vehicles destroyable  Bus: 5 HP, Truck: 4HP, Cars: 3HP |  |
| If is no knockback spots for brute, like divider and sidewalk next, still do brute animation, do vehicle slight motion to simulate getting hit, and deal damage to vehicle for hard mode |  |
| When vehicle hit brute, deal damage to self as well |  |
| Difficulty explanations on menu. Difficulty indicator ingame. Highscore linked to difficulty in dictionary |  |
| Add BGM |  |
| Add sound effects for skills happening |  |
| For medium and hard, do a faster leveling up, instead of instantly into advanced mobs. Level up per wave until level 10. Or 1 wave for each levelup until 5, then 2 wave for each levelup until 10. |  |
| Add mini blips for skill selection, and skill targeting, and fail selection. |  |
| Add stop music button. Add mute all button. Remove game log button and gamelog window. Add instructions button and instruction window. |  |
| Call in sound for vehicle call in. |  |
| Need vehicle sounds. Lane Change. And Moving. |  |
| Need indication of stunned vehicles and stunned units.  Implementation is to set stunned animation as idle motion, and set tint to darker grey |  |
| Stunned animation for Flatten and Shield. |  |
| Gameover music and fix best score saving and loading |  |
| Add a quit game & save high score exiting option  Add at MAX level = 30, an option to quit as completed or continue endlessly for high score |  |
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**Outstanding Bugs**

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| --- | --- | --- |
| **Description** | **Coded** | **Confirm?** |
| When vehicle explodes, units on top of it are still floating. They should drop down to yadjustment 0 |  |  |
| Knockback from brute did not move units on top of vehicle |  |  |
| Monsters still get pushed before dying |  |  |
| Unknown scenario when Call in Vehicle did not free up a lane where the vehicle has already arrived. Not replicated yet. |  |  |
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**What Ifs Scenarios**

**Fixed Bugs**

Lane Change selection allows to select a truck/bus on its tail grids. It should direct the selection to the head of vehicle.

Lane Change checking of feasibility does not account for multiple grid vehicle, such as truck and buses

Lane Change for vehicles does not account for motorcycle in the way when motorcycle is in-between lanes

Lane Change should not be allowed when vehicle is stunned

Lane Change – clicking lane change button again to deselect it did not remove lane change UI

Enemy Spawn should trigger grid repositioning too

Lane Change - Selecting motorbike in-between lane will not centre the UI on it, it centres onto the grid instead.

Skater vehicle in the way issue – when vehicle is diagonally, it will hit and displace horizontally instead, but there might be a vehicle horizontally. How to resolve? KEEP AS IT IS. Skater will displace horizontally and die

Positioning of enemies in a grid – there should be priority system for the positioning as brute and shield will block vehicles and should be against the direction of traffic. With shield as priority, followed by brute. Shield will defend brute from taking damage.

Double Brute acting on the same vehicle will knock it back twice. It should only knock once.

Fixed airdrop animation that is sometimes delayed. Fixed stunned interaction when airdropped onto bloat.

Stunned animation for flatten and shield