Blockout Design Doc
For Gameboy Advance

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Game-flow

- Large "Illusive Studios" logo fades in center from black, pauses a second, then fades out to black.
- Next screen will have a background that looks like a sky. A large "Blockout" logo scrolls in from the right side. While it is scrolling into view, you can't see any menu options. Clouds will scroll from left to right.
- After the logo stops moving, the menu will fade in with the following options:
  - Start Game (This will be the only option for now, but I will leave room for more menu options below it.)
  - Options (Options and Credits are just extras, to give extra functionality if I choose to add them later.)
  - Credits
- The menu text will be drawn from a bitmapped font using a tiled background.
- Pressing the Start button on the menu will confirm selection. Pressing 'B' will cancel selection. (This is only if there is more than one menu option.)
- Start Game menu:
  - After selecting Press Start, the game will start (DUR!!).
  - After selecting Press Start, it will take you to the first level. The paddle will be at the bottom middle of the screen (with a small margin of height away from the bottom.)
  - The ball will start resting on top of the paddle.
  - The game will display a countdown in the center of the screen from 3…2…1…and when it reaches 0, the ball will move upwards at an angle toward the right. Zero is not displayed.
  - Physics are as follows:
    - When the ball hits the paddle, it will ricochet off of it in a direction depending on where it hit on the paddle. The more the ball hits the left side of the paddle, the more it will angle off toward the left. Same goes for the right side. It will NOT take into consideration the angle that it's at when it hits the paddle.
    - When the ball hits a brick, the brick will disappear and the ball will simply change to the opposite direction from where it hit. In other words there will be no extra angle calculations for when the ball hits a brick… only when it hits the paddle can the angles actually change.
  - When the ball goes past your paddle, you are minus one paddle, a sound will play and your paddle will display a death animation.

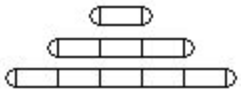
- If you have another paddle remaining, your paddle will reappear in the middle and the countdown will begin again, with the ball once again just above the paddle.
- When you lose your last paddle, Game Over will appear in the center of the screen, pause for a few seconds, then go back to displaying the "Illusive Studios" logo.
- The amount of paddles remaining will display on the bottom right of the screen. It will be labeled Lives: 3 (was changed from Paddles: 3, because it was too long.)
- You will start with 3 paddles.
- When you break the final brick of that level, it will add the bonus to the score for completing the level, then it will pause for a few seconds to allow you to view the score, then it will load the next level and start the paddle in the middle again with the ball just above the paddle and the countdown will begin from 3 again.
- The score will display on the bottom left of the screen. It will be labeled Score: 0
- The scores are as follows:
  - When the ball bounces off the paddle: 3
  - When the ball breaks a brick: 10
  - When you complete a level: 100 * level number
- The level number will display in the bottom middle of the screen. It will be labeled Level: 1
- Pressing the Start button during game play, will pause the game and it will display the word Paused in the center of the screen. Pressing Start again will resume game play.

- Powerups
  - During game play, when the ball destroys a block, the block may randomly drop a powerup capsule. If you pick up the capsule by touching it with your paddle, something will happen.
  - There will be good and bad capsules. Capsules will all be different colors. Capsules are as follows:
    - Green: Grow – (good) Grows the size of the paddle
    - Red: Shrink – (bad) Shrinks the size of the paddle
    - Purple: speed Up – (bad) speeds up the ball (will have to call remap-paddle function)
    - Blue: speed Down – (good) slows the speed of the ball down (will have to call remap-paddle function)
    - Grey: Multi-ball – (good) creates 2 more balls. (a more rare powerup)
    - Yellow: Cannon – (good) allows you to shoot bullets out of your paddle.

Algorithms for Powerups

- **Green** – Grow: A dummy sprite will be used to make the paddle grow. The sprite will just be of a middle section of the paddle, and the sides will be added to it. This

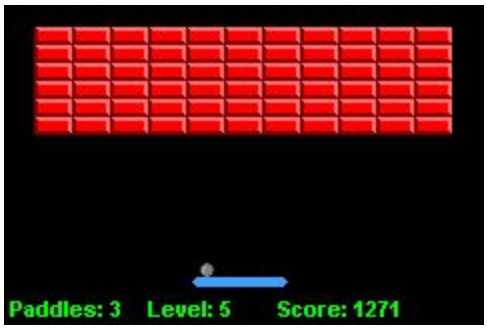
means that the paddle sprite must be made into three total sprites: Two for each end, and one for the middle. The middle sprite will be small enough so that the player can get the Grow or Shrink capsules and gradually grow or gradually shrink. There will be three different sizes the paddle can be, like so:



Since I'll be splitting up the paddle into multiple sprites, a global will need to be used for total width of the paddle for collision detection and such. Whenever a Green or Red size changing capsule is acquired by the player, the SetPaddleMap function must be called for the new size of the paddle.

- **Red** – Shrink: Will work similarly to the Green Grow capsule above.
- **Purple** – Speed Up: The ball struct (mentioned below) will contain the speed of the ball in both the x and y directions. There will be global min and max speed variables. There will also be a speed up/down factor variable, such that when the player gets a speed up/down capsule, it increments/decrements the speed of all balls by this variable.
- **Blue** – Speed Down: Will work similarly to the Purple Speed Up capsule above.
- **Grey** – Multi-ball: A ball struct will be created to encompass a ball object. It will contain speed in both x and y direction, and a state to keep track if it's alive or not among other things. A #define will be used to define how many balls can be gained per each capsule, as well as a #define for the max number of balls. If max is reached, then no grey capsules will show up until a ball is lost.
- **Yellow** – Cannon: Two cannon sprites will be created: A left cannon and right cannon. They will be attached to the sides of the paddle and will not affect the size of the paddle in collision detection calculations, etc.

So the playing field will look something like this (NOTE: this is a very rough sketch and exact positions are not correct. Also, Paddles has been changed to Lives, and Paddles is on the right while Score is on the left):



Video Mode

- Mode 0: 240 * 160, 256 15bit colors (palletized), hardware sprites, and tile mode with three backgrounds. No rotation or scaling will be used.

- The screenshot above was purposely made 240 * 160 to give me an idea of what it would look like in that mode.
- 8x8 pixel tiles will be used

Sound

- The 2 DirectSound (not to be confused with Microsoft's API) channels will be used for sound FX.
- A SFX for the ball hitting a brick.
- A SFX for the ball hitting the paddle.
- A SFX for when the ball goes past paddle (dying.)
- A SFX for when you confirm selection in the menu.
- A SFX for when the game logo scrolls in. WOOOSSH!!!!!
- A SFX for when the game logo smacks into place. CRASH!!!!
- A SFX for when the paddle's cannon is shot.

Music

- Music will use 4 channel .mod files.
- A song will start right when the company logo starts to fade in and will play through the first level.
- Will switch to the next song when the next level is loaded.
- You can cycle through the music by pressing the Select button during game play.