Block And Dodge PRD

Current 3D mobile fighters rely heavily on auto-play or stiff blocking.

This removes player agency, reduces decision-making, and makes combat feel shallow.

The game needs a **fully controlled, grounded defensive system** that:

- gives the player direct control
- rewards spacing and timing
- keeps realism intact
- supports fast-paced fist combat
- integrates cleanly with movement + attack systems

Without this, combat becomes predictable, linear, and unfair.

Goals

1. Create a responsive defensive system

Blocking and dodging must feel instant, readable, and reliable.

2 Support grounded, realistic combat

No i-frames, no fantasy dodges, defense = skill + positioning.

3 Allow recovery cancel for fluidity

Player can cancel ANY attack recovery into block/dodge.

4 Enable offensive pressure

Chip damage prevents turtling and keeps aggression rewarding.

5 Maintain clarity

Block poses and dodge steps must be readable under fast combat.

System Overview

The defensive system includes:

Blocking

- Full-body block
- Activates instantly when button is held
- Negates most damage, but takes **5–10% chip damage**
- Reduces stagger intensity
- Locks movement
- Ends immediately when button is released (with short transition frame window)

Dodging (Quick Step)

- No invincibility
- Pure positional dodge
- Triggered by quick left/right input
- Moves player slightly to left/right
- Used to avoid hits by spacing, not by i-frames
- Very skill-based
- No stamina cost in V1

Cancel Rules

- ANY attack recovery can be canceled into block/dodge
- Startup and Contact cannot be canceled
- Encourages fluid combat with risk–reward

This system supports **fast paced, grounded 1v1 melee combat**.

Blocking Functional Rules

1: Activation

- Block activates instantly when **Block button is held**.
- Transition animation plays for ~0.05s.

2: Damage Rules

- Incoming hits deal **5–10% chip damage**.
- Heavy attacks deal slightly more chip.
- Block reduces stagger intensity by 70%.

3: Movement

- Movement is **disabled** while blocking.
- Quick Step is also disabled while blocking.

4: Attack Interaction

- Startup → block = NOT allowed
- Contact → block = NOT allowed
- Recovery → block = allowed (cancel window)

5: End of Block

Releasing block has:

- 0.05s drop animation
- Slight vulnerability frame (2–3 frames)

Dodging (Quick Step) — Functional Rules

1: Activation

- Triggered by **double tap or flick** left/right movement input.
- No dedicated button.

2: Movement

- Fast short step (30–50cm in game world)
- Pure positional dodge
- Zero invincibility
- If hitbox overlaps hurtbox → player takes damage

3: Cancel Rules

- Can cancel ANY attack recovery
- Cannot cancel Startup or Contact
- Cannot cancel Block

4: Timing

- Duration: 0.15–0.22 seconds
- Lock movement during dodge
- Rotation frozen during dodge

5: Punish Window

- After dodge completes, 2–3 frames vulnerability before attacking again
- Prevents spam

State Machine Definitions

Block State

- Enters immediately when block button pressed
- Cancels Recovery phase
- Overrides Idle/Walk/Run
- Movement disabled
- Leaves state when button released

Dodge State

- Enters when Quick Step input detected
- Overrides Idle/Walk/Run
- Can override Recovery
- Cannot override Startup or Contact
- Ends when step animation completes

Acceptance Criteria

These criteria define when the defensive system is considered “complete” and functioning correctly.

1 Input Responsiveness

1. Block must activate within **≤ 70ms** of button press.
2. Quick Step must trigger within **1 frame** of directional input detection.
3. ANY attack recovery must cleanly cancel into block/dodge within **1–2 frames**.
4. Startup and Contact frames must **never** allow defensive cancel.

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2 Block Requirements

1. Block negates **90–95%** of incoming damage, leaving **5–10% chip**.
2. Players must visibly enter a block pose within **0.05 seconds**.
3. Block must correctly reduce stagger intensity by **70%**.
4. Movement and dodging must be locked during block.
5. Block release must show a **short vulnerability window** (2–3 frames).

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3 Dodge (Quick Step) Requirements

1. Dodge moves player **30–50cm** left or right consistently.
2. No invincibility frames — any collision with hitbox deals damage.

3. Dodge cannot cancel Startup or Contact frames.
4. Dodge can cancel **any Recovery phase** cleanly.
5. Dodge has a **post-dodge vulnerability** of 2–3 frames.
6. Player rotation must stay frozen during dodge.

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4 Defensive Feel & Game Experience

1. Block and Dodge actions must feel responsive but fair.
2. 80%+ of playtesters must report:

- Block is reliable
- Dodge is useful
- Combat feels controlled, not chaotic
- Defensive options feel skill-based

3. Block + Dodge must not enable infinite defensive loops.

Risks And Constraints

These highlight potential issues and limitations during development.

1 Design Risks

1. **Over-defensive meta**
    - If block is too strong, players may turtle excessively.
2. **Dodge spam abuse**
    - Without cooldown or vulnerability, players could spam dodge endlessly.
3. **Cancel abuse**

Canceling ANY recovery into block/dodge may:

- remove punish windows
- create overly safe combat

- reduce decision-making

Must be balanced by:

- vulnerability frames
- clear recovery timing

4. **No i-frames increases difficulty**

Players must rely purely on spacing — could feel punishing for casual players.

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2 Technical Risks

1. **State Machine Conflicts**
    a. Block, dodge, and attack cancel rules must not overlap incorrectly.
2. **Animation Sync Issues**
    a. Block pose or dodge may:
    - appear too late
    - desync from cancel frames
    - clip with attack animations
3. **Quick Step Timing Conflicts**
    a. Double-tap/flick detection may:
    - misfire
    - conflict with regular movement input
    - trigger accidentally
4. **Pushback bugs**
    a. If dodge ends inside enemy collider, physics glitches may occur.

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3 Production Constraints

1. **Animation Budget**
    a. Block and dodge require:

- block idle
- block enter
- block exit
- left step
- right step

If animations are missing, system feels cheap.

2. **Mobile Readability**
    a. Block pose and dodge animation must be *extra* readable on small screens.
3. **Performance**
    a. Quick Step + camera adjustments + combat events must maintain **60 FPS** on mobile.
4. **Simplicity in V1**
    a. No:
        - directional blocks
        - multi-dodge types
        - stamina
        - perfect block timing

Keep V1 tight and focused.