

Trench

Faster! Faster! Faster!

Concept Approval

12/7/94 • 11:30AM • Central Conference Room

Distribution

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Goals for this meeting

In this concept approval we hope to gain the confidence of the company that will enable us to proceed towards initiation of the Trench project.

We also hope to hear all sides of the debate over the hardware and configuration that the Trench product should use.

Trench in a Nutshell

Gripping the controls of your illegal hovercycle— racing at insane speeds through the colony's long, chunky corridors, wide plazas, and intricate ducts, their thin walls the only thing keeping out the deadly Martian environment— this is exactly what the authoritarian government of the colony does NOT want its citizens to do. Which is exactly what makes it so fun.

Trench is the working name for a new coin-op product here at TWI. Trench will be a fast-action racing game in which players compete to finish the course before security forces shut them off, and to win the race before the competitors. The race takes place in the busy tubes and chambers of a sprawling Japanese/American colony on the surface of Mars, which is in the process of being terraformed by desperate Earthlings.

Trench is a racing game through and through, but with the twist that makes STUN Runner a memorable classic. When you take a turn too fast, you don't go off into the grass and slow down. You scrape against the trench wall, sparks flying. Take the high bank on the curve of a sewer duct to pass up your loser friend. You can try to marvel at the awesome scenery— high-tech machinery, beautiful zero-gravity sculpture, the rapidly evolving life on the warped Martian surface— but you also keep your eyes wide open for the next jump that can propel you up to that hidden shortcut, that boost zone that will make your eyeballs sink back with the rush of speed, that dude in the trenchcoat that will jack up your gun strength.

The Commandant hates your guts. The Taming Police are cruising for loose cannons like you. The newsfeeds say the chaos you're causing is the quickest way to space madness, but you think it's the only antidote.

Brass Tacks

We propose to make a 3D racing game that you sit down to play. The seat will be as easy to sit on as a motorcycle, the controls just as simple, and the screen will be as open and visible as the windshield. It will have excellent sound. It will be networked so you can race your friends. We will make it competitively priced. It will ship out in April of 1996; March if we meet our schedule.

Project Differentiation

This racing game will put a fresh spin on the slew of Daytona imitators that is sure to come.

- The look will inspire the imagination and grab the eye, giving the player a setting with personality, drama, and style.
- Trench will have a depth of exploration far beyond any other racing game: there will be shortcuts and hidden powerups galore to discover and exploit, enticing players to find the "perfect path".
- The jumps and tube-banked turns will blow away players used to the same curving flat grey roads of every other driving game.
- Fast swerving through slow traffic— who hasn't dreamed of that...
- The combat between players will crank up to a new level far beyond the bumper-thumping of current drivers.
- The music will be current, ear-catching, and speed-inspiring.
- The textures and full-motion video will be done via Alias in skilled hands; say no more.

Core Development Team

Producer/Designer: **Matthew Ford** + _____
Software lords: **Gary Stark (lead)**
Norm Avellar
Jun Amanai (potential support)
Graphic wizards: **Brian LaFrance (lead)**
Rich Chargin
Mr./Ms. NotYetHired
Audio wunderkind: **Richard Marriott**
Marketing flamingo: **David Macias**

Game design elements

OBJECTIVE

Your overarching objective is to negotiate down the race course as quickly as possible.

- By doing so, you can stay ahead of the security shutdowns that threaten to slam a door in your face before you even get to the end of the race. These security doors work much like checkpoints in traditional racing games: if you do not make it to the security gate before your time is up, your race is prematurely stopped. If you do make it to the security gate in time, more time is added to your timer.

- By racing quickly, you also stay ahead of other players networked in with you. The one to finish the whole course first gets bragging rights and extra power in the cyberspace race (see below)

- By racing quickly and finishing the course, you gain admission into the cyberspace race, a surreal shot into the colony's information network. More on this later.

MEANS

You improve on your rate of progress along the course by discovering and maneuvering into powerups along the way, set out on the course by your teeming fans who have come out to watch your blaze of glory.

- Boost zones temporarily kick up your speed and make you collisionproof.
- Cycle powerups improve the steering and top speed of your cycle.
- Gun powerups make your displacer gun more hefty, the better to blow away hidden panels, clear obstacles, and tweak your opponents.
- Security clearances gain you passage through those locked doors that you are so curious about.

FOES

Running out of time is your greatest foe. Many things conspire to slow you down. To slow down too much is to not make it through the next security gate in time (see Objectives above) or lose the race to another racer.

- The colony police force will drop slowgel in your path, and their cruise patrols will hassle you to distraction.
- Slow-moving traffic gets in your way.
- Some of those turns are pretty hairy, and scraping against the walls will drag on your speed.
- Your fellow racers can hit you with displacer bolts and wrestle you down.

Inspirations

**STUN Runner • Daytona • Akira • Sonic the Hedgehog on acid
Road Rash • Highway 17 • Star Wars**

Product cost estimates

Please refer to the spreadsheets at the back of this package for cost estimates of two possible configurations of Trench.

The Hardware Question

After we decided to make Trench, almost every decision has been pretty easy. After a little thought, the best solution jumped out. However, one fundamental decision has given us, despite much thought and investigation, a real thorn in our side: hardware.

Possibility #1: We use ZOID20 to drive both screens of a twin sitdown unit.

Possibility #2: We use Titan to drive the one screen of a single sitdown unit.

ZOID plusses and minuses

- + Supporting ZOID = improve ZOID = strengthen the company
- + More ZOID games = less inventory risk
- + Can upgrade to better family processor
- + Easy LBE upgrade conversion
- Difficult to impossible JAMMA and Japanese penetration
- Company putting too many eggs in one basket?
- Can't have 1-screen standalone unit
- + Capabilities better known than most prospective HWs
- + Base code authors and HW engineers are in house
- Splitting ZOID will be tough SW challenge
- Full development systems not available till March-April
- + Can request mods of HW if needed
- + Good tools/OS/code library support due to similar projects in house
- + Tools run on powerful machines (SGI)
- + Good lighting effects

Titan plusses and minuses

- + Easy conversion to Saturn home market
- + No HW barrier to Japanese market
- + Clean HW— less likelihood of engineering problems
- Probably must use standard resolution
- May not deliver enough power for Trench (3DO trap)
- RAM allocations may be too limiting
- + Team gains experience with a consumer HW
- What if Saturn platform crashes?
- Can't modify HW if needed
- Relying on market competitor to help us achieve market supremacy
- May be forced to compile on PC
- Unreliable security?
- Reportedly difficult to program
- + Target HW is available here and now
- Diversifies company reliance on technologies
- Strength of PSX may cause Sega to yank Titan/Saturn to redevelop
- Must spend significant engineering energy on superoptimization

| Unit cost estimate | | | |
|------------------------------------|-----------|-----------------|-------------------|
| Titan for 1 screen | | | |
| Single rideon cabinet | | | |
| Item | Unit Cost | Qty | Rideon Dedicated |
| Electronics | | Subtotal | \$1,107.40 |
| Titan main board | \$500.00 | 1 | \$500.00 |
| CDROM (Sega supplied) | \$350.00 | 1 | \$350.00 |
| License fee | \$100.00 | 1 | \$100.00 |
| Security chip | \$15.00 | 1 | \$15.00 |
| Cartridge PCB | \$6.40 | 1 | \$6.40 |
| 2M masked ROM | \$8.50 | 16 | \$136.00 |
| | | | |
| Electrical/std components | | Subtotal | \$550.66 |
| Power supply | \$56.49 | 1 | \$56.49 |
| Power distribution PCB | \$18.50 | 1 | \$18.50 |
| 25" std. res. display (Neo-Tek) | \$270.00 | 1 | \$270.00 |
| 18" Fluorescent Light Assy. | \$10.00 | 1 | \$10.00 |
| Fan (incl harness grill & filter) | \$20.00 | 1 | \$20.00 |
| 4" Speaker | \$5.95 | 2 | \$11.90 |
| Harness (Main,Speaker,& Pwr.) | \$97.75 | 1 | \$97.75 |
| 8" Subwoofer Speaker, 4 ohm | \$6.00 | 1 | \$6.00 |
| 2 mech coindoor, box, lik, counter | \$56.90 | 1 | \$56.90 |
| Test Switch assembly | \$3.12 | 1 | \$3.12 |
| | | | |
| Cabinet | | Subtotal | \$350.00 |
| One-seat rideon cabinet | \$350.00 | 1 | \$350.00 |
| | | | |
| Wood Vendor Kit | | Subtotal | \$95.14 |
| Hardware | \$3.30 | 1 | \$3.30 |
| Leg lever plate | \$1.15 | 4 | \$4.60 |
| Monitor brackets | \$2.78 | 1 | \$2.78 |
| Side panel decals | \$70.00 | 1 | \$70.00 |
| Fan guard | \$0.92 | 1 | \$0.92 |
| Casters | \$3.08 | 4 | \$12.32 |
| Lock assy. behind monitor | \$1.22 | 1 | \$1.22 |
| | | | |
| Misc Cabinet Parts | | Subtotal | \$128.96 |
| Attraction decal | \$6.47 | 1 | \$6.47 |
| Attraction shield | \$8.00 | 1 | \$8.00 |
| Attract frame | \$18.00 | 1 | \$18.00 |
| Monitor shield | \$6.00 | 1 | \$6.00 |
| Black Bezel | \$4.50 | 1 | \$4.50 |
| 4" speaker grill | \$5.00 | 2 | \$10.00 |
| 8" Speaker grill | \$6.99 | 1 | \$6.99 |
| Formed seat | \$35.00 | 1 | \$35.00 |
| Display frame | \$20.00 | 1 | \$20.00 |
| Side trim (foot rests) | \$7.00 | 2 | \$14.00 |

Far overpriced
A guess

| Control Panel Assembly | | Subtotal | \$269.40 | | |
|--|----------|-----------------|-------------------|--|------|
| Formed control panel | \$45.00 | 1 | \$45.00 | | Cut? |
| Control panel decal | \$3.50 | 2 | \$7.00 | | |
| STUN controller | \$175.00 | 1 | \$175.00 | | |
| Button assembly (start & 3 views) | \$1.10 | 4 | \$4.40 | | |
| Control panel bracket | \$18.00 | 1 | \$18.00 | | |
| Control panel harness | \$20.00 | 1 | \$20.00 | | |
| Other | | Subtotal | \$125.65 | | |
| Shipping Container | \$100.00 | 1 | \$100.00 | | |
| Labels, Manuals, Bags, Etc. | \$5.65 | 1 | \$5.65 | | |
| Misc. Hardware | \$10.00 | 1 | \$10.00 | | |
| Reserve for Missing Parts | \$10.00 | 1 | \$10.00 | | |
| Total Material Costs | | | \$2,627.21 | | |
| NRE for masked ROMs, amortized over 1000 units | | | \$28.80 | | |
| Video labor | | | \$14.73 | | |
| Overhead (without Sega stuff) | 18% | | \$301.90 | | |
| Total cost of goods | | | \$2,972.64 | | |
| Distributor price (45% margin) | | | \$5,404.80 | | |
| Distributor price (40% margin) | | | \$4,954.40 | | |
| Distributor price (35% margin) | | | \$4,573.29 | | |

| Unit cost estimate | | | | | | |
|--|-----------------|--------|---------------------|---------|-------------------|-------------------|
| ZOID split for 2 screens | | | | | | |
| Double rideon cabinet, divided into front & back parts | | | | | | |
| Item | Unit Cost | HD Qty | Hard drive Extended | ROM Qty | ROM Extended | |
| Electronics | Subtotal | | \$1,994.50 | | \$1,840.00 | |
| ZOID math box PCB 133Mhz | \$499.00 | 1 | \$499.00 | 1 | \$499.00 | |
| ZOID render engine PCB | \$250.00 | 1 | \$250.00 | 1 | \$250.00 | |
| ZTV | \$375.00 | 1 | \$375.00 | 1 | \$375.00 | \$425 if standard |
| 3041-20J host PCB | \$95.00 | 1 | \$95.00 | 1 | \$95.00 | |
| CAGE audio CH31_2 | \$101.00 | 1 | \$101.00 | 1 | \$101.00 | Split. Needed? |
| Amplifier | \$30.00 | 1 | \$30.00 | 1 | \$30.00 | |
| Hard disk drive 340 MB | \$135.00 | 1 | \$135.00 | 0 | \$0.00 | Low price |
| Texture RAM/ROM PCB | \$25.00 | 1 | \$25.00 | 1 | \$25.00 | |
| Object RAM/ROM PCB | \$25.00 | 1 | \$25.00 | 1 | \$25.00 | |
| Sound RAM/ROM PCB | \$45.00 | 0 | \$0.00 | 1 | \$45.00 | |
| I/O | \$25.00 | 1 | \$25.00 | 1 | \$25.00 | |
| Communications cost on ZOID | \$32.00 | 1 | \$32.00 | 1 | \$32.00 | |
| Ribbon cables/backplane | \$30.00 | 1 | \$30.00 | 1 | \$30.00 | |
| Working RAM (1MB) | \$40.00 | 1 | \$40.00 | 1 | \$40.00 | |
| Texture RAM (1 MB) | \$40.00 | 6 | \$240.00 | 0 | \$0.00 | |
| Object RAM (1MB) | \$40.00 | 1 | \$40.00 | 0 | \$0.00 | |
| Audio RAM | \$40.00 | 1 | \$40.00 | 0 | \$0.00 | |
| Texture ROM (2M mask, dbl bank) | \$8.50 | 0 | \$0.00 | 16 | \$136.00 | |
| Object EPROM (2MB) | | | \$0.00 | | \$38.00 | |
| Audio boot EPROM (1MB) | | | \$3.00 | | \$3.00 | |
| Audio ROM (2M masked) | \$8.50 | 0 | \$0.00 | 4 | \$34.00 | |
| Program EPROM (1M) | \$9.50 | 1 | \$9.50 | | \$57.00 | |
| Electrical/std components | Subtotal | | \$1,130.27 | | \$1,130.27 | |
| Power supply | \$56.49 | 1 | \$56.49 | 1 | \$56.49 | |
| Power distribution PCB | \$18.50 | 1 | \$18.50 | 1 | \$18.50 | |
| 25" med res. display (Neo-Tek) | \$320.00 | 2 | \$640.00 | 2 | \$640.00 | |
| PCB groundplane & hat | \$20.00 | 1 | \$20.00 | 1 | \$20.00 | |
| IEC, On/Off Harn, 2 Jumpers | \$14.04 | 1 | \$14.04 | 1 | \$14.04 | |
| Power Cord | \$2.10 | 1 | \$2.10 | 1 | \$2.10 | |
| 18" Fluorescent Light Assy. | \$10.00 | 1 | \$10.00 | 1 | \$10.00 | |
| Fan (incl harness grill & filter) | \$20.00 | 1 | \$20.00 | 1 | \$20.00 | |
| 4" Speaker | \$5.95 | 4 | \$23.80 | 4 | \$23.80 | |
| HD Shock Mount | \$20.00 | 1 | \$20.00 | 1 | \$20.00 | |
| Harness (Main,Speaker,& Pwr.) | \$200.00 | 1 | \$200.00 | 1 | \$200.00 | |
| 8" Subwoofer Speaker, 4 ohm | \$6.00 | 2 | \$12.00 | 2 | \$12.00 | |
| 4 mech coindoor, box, lik, counter | \$87.67 | 1 | \$87.67 | 1 | \$87.67 | |
| Cashbox bracket | \$2.55 | 1 | \$2.55 | 1 | \$2.55 | |
| Test Switch assembly | \$3.12 | 1 | \$3.12 | 1 | \$3.12 | |
| Cabinet | Subtotal | | \$500.00 | | \$500.00 | |
| Two-seat rideon cabinet | \$500.00 | 1 | \$500.00 | 1 | \$500.00 | |

| | | | | | | |
|---|-----------------|---|--------------------|---|-------------------|------|
| Wood Vendor Kit | Subtotal | | \$151.46 | | \$151.46 | |
| Hardware | \$3.30 | 1 | \$3.30 | 1 | \$3.30 | |
| Leg lever plate | \$1.15 | 4 | \$4.60 | 4 | \$4.60 | |
| Monitor brackets | \$2.78 | 2 | \$5.56 | 2 | \$5.56 | |
| Side panel decals | \$110.00 | 1 | \$110.00 | 1 | \$110.00 | |
| Fan guard | \$0.92 | 1 | \$0.92 | 1 | \$0.92 | |
| Casters | \$3.08 | 8 | \$24.64 | 8 | \$24.64 | |
| Lock assy. behind monitor | \$1.22 | 2 | \$2.44 | 2 | \$2.44 | |
| Misc Cabinet Parts | Subtotal | | \$225.45 | | \$225.45 | |
| Attraction decal | \$6.47 | 1 | \$6.47 | 1 | \$6.47 | |
| Attraction shield | \$8.00 | 1 | \$8.00 | 1 | \$8.00 | |
| Attract frame | \$18.00 | 1 | \$18.00 | 1 | \$18.00 | |
| Monitor shield | \$6.00 | 2 | \$12.00 | 2 | \$12.00 | |
| Black Bezel | \$4.50 | 2 | \$9.00 | 2 | \$9.00 | |
| 4" speaker grill | \$5.00 | 4 | \$20.00 | 4 | \$20.00 | |
| 8" Speaker grill | \$6.99 | 2 | \$13.98 | 2 | \$13.98 | |
| Formed seat | \$35.00 | 2 | \$70.00 | 2 | \$70.00 | |
| Display frame | \$20.00 | 2 | \$40.00 | 2 | \$40.00 | |
| Side trim (foot rests) | \$7.00 | 4 | \$28.00 | 4 | \$28.00 | |
| Control Panel Assembly | Subtotal | | \$538.80 | | \$538.80 | |
| Formed control panel | \$45.00 | 2 | \$90.00 | 2 | \$90.00 | Cut? |
| Control panel decal | \$3.50 | 4 | \$14.00 | 4 | \$14.00 | |
| STUN controller | \$175.00 | 2 | \$350.00 | 2 | \$350.00 | |
| Button assembly (start & 3 views) | \$1.10 | 8 | \$8.80 | 8 | \$8.80 | |
| Control panel bracket | \$18.00 | 2 | \$36.00 | 2 | \$36.00 | |
| Control panel harness | \$20.00 | 2 | \$40.00 | 2 | \$40.00 | |
| Other | Subtotal | | \$165.65 | | \$165.65 | |
| Shipping Container | \$140.00 | 1 | \$140.00 | 1 | \$140.00 | |
| Labels, Manuals, Bags, Etc. | \$5.65 | 1 | \$5.65 | 1 | \$5.65 | |
| Misc. Hardware | \$10.00 | 1 | \$10.00 | 1 | \$10.00 | |
| Reserve for Missing Parts | \$10.00 | 1 | \$10.00 | 1 | \$10.00 | |
| Total Material Costs | | | \$4,706.13 | | \$4,551.63 | |
| PCB labor | | | \$12.86 | | \$12.86 | |
| Video labor | | | \$14.73 | | \$14.73 | |
| NRE for masked ROMs, amortized over 1000 units (\$1800 per) | | | | | \$36.00 | |
| Overhead | 18% | | \$847.10 | | \$819.29 | |
| Total cost of goods | | | \$5,580.82 | | \$5,434.51 | |
| Distributor price (45% margin) | | | \$10,146.95 | | \$9,880.93 | |
| Distributor price (40% margin) | | | \$9,301.37 | | \$9,057.52 | |
| Distributor price (35% margin) | | | \$8,585.88 | | \$8,360.79 | |

Mary: stuu good because "4 yr old to 40 yr old can play"

Marvin Martian: liscense? (Home liscense too?)
(Low end HM possible)

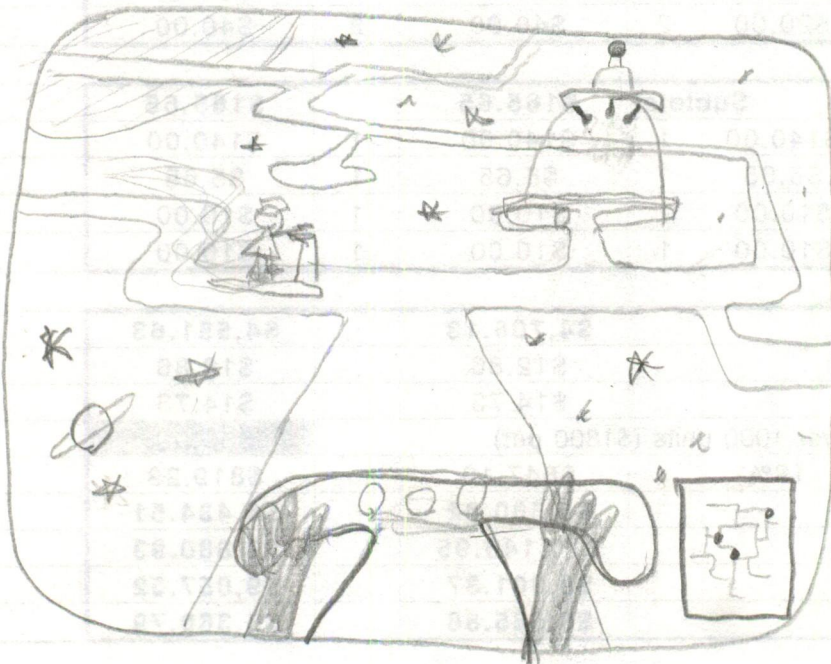
what about an entirely Marvin Martian game?

Ace Racer?

Telson's?

Prototyping = ~~The Holy Grail~~ discuss

Be carefull about locked down FGA, but dynamic initiation date.



Pre-setting your FGA is a classic trap.

Say late, deliver early.