

An Overview of Virtual Express, Ltd. (VEL)

ABOUT THE COMPANY

PERSONNEL

Unique world-class technical team with established performance record, including:

- * First publicly accessible VR demo system, June 1989.
- * First publicly demonstrated VR exercise system (HiCycle), June 1989.
- * Developed the initial software which evolved into the products of both current leading software vendors for VR (Sense8 WorldToolKit, Autodesk Cyberspace Development Kit).
- * Long-term experience advising and consulting with start-up VR companies.
- * Deep knowledge and expertise in advanced mathematical and computational techniques.
- * Successful VR prototypes and projects in education, scientific visualization, aerospace, ecology, and entertainment.

The technical team has been working together for many years, and has an established chemistry and performance history with all aspects of VR covered in depth. The team has invented and defined many of the popular VR techniques used today for operating systems, for interactivity, and for the generation of virtual experiences. The four team members have an accumulation of over 40 years of VR experience.

TECHNOLOGY

Virtual Express's highly valuable, proprietary, and unique software development tools and techniques (leading to a future product, the VR developer's software toolkit) support these product capabilities:

- * quality virtual experiences at accessible costs
- * entertaining activity
- * flexible, rapid and efficient VR design and world construction

The Virtual Express VR system smoothly integrates these features:

- * turnkey, programmable virtual world experiences
- * multiple participants without loss of performance
- * construction, navigation and interaction tools
- * real-time 3D animation which allows interaction with creatures and characters in VR
- * physical dynamics, artificial intelligence, and other advanced techniques
- * worlds on cdrom can be changed easily

We have a demonstrated capability to build effective VR systems quickly. Two exercise application prototypes, each built within four weeks, delivered and running without flaw to high use trade show environments. We have a growth potential in exotic computational technologies which could improve the cost/performance ratio of our current systems up to 1000 times.

ABOUT THE PRODUCT

The Virtual Express product is *quality virtual experiences at affordable prices*. This product is unique, and is marketed

- * horizontally as infrastructure tools which facilitate applications developers in a VAR relationship to Virtual Express, and
- * vertically as selected applications developed by Virtual Express in
 - (1) the health and exercise marketplace and
 - (2) the location-based entertainment marketplace.

PRODUCT FEATURES

TrueVR:

- * 3D graphics, not 2D tricks that look like 3D.
- * Inclusion (i.e. immersion), not desktop monitors.
- * Environments, not picture-windows on a screen.
- * Interaction, not moving cameras over a non-responsive environment.
- * Unique multiple participants (customized individual experiences), not many views onto the same scene.
- * Experiences, not sensations.

TrueVR means high frame rate, low lag, complex worlds, complete interactivity, full immersion, and intelligent entities. TrueVR avoids physiological discomfort, provides the feeling of freedom and excitement, and promotes the desire to return to the virtual world. No competing hardware systems below \$60,000 offer TrueVR; no competitors to date have the technical capabilities to design TrueVR experiences.

Participant Centered Design:

The world feels right cause the physical body is modeled accurately within the virtual environment. Simulator sickness is minimized due to appropriate physiological constraints, cues, scaling, and expectation management. Our competition, for the most part, completely ignores these issues.

Multiple Participants:

Multiple participants are networked together in the same world, interacting with the world and with each other. Up to ten people can inhabit the same virtual world without loss of performance. For most of our competition, each new participant degrades the performance of the world. The most interesting thing in a virtual world is other people. Multiple participants provide a compelling social environment which makes the virtual worlds stimulating, challenging, and fun.

Interactive Entities:

Entities are creatures which act naturally in the virtual world and interact with all the participants. The Rabbit, for example, can autonomously search for food while, at the same time, following a participant. When the participant moves the food in real-time, the Rabbit alters its behavior in real-time. Most of our competition offers non-interaction (i.e. flythrough) or scripted interaction (push button to initiate a sequence of stored behaviors).

Entities are sensitive to environmental conditions (acting differently if one or two participants are present), react conditionally (Rabbit looks for food only when hungry), and have their own dynamic agenda (not scripted but context dependent). This amounts to real-time, interactive, participatory, 3D cartoons. Entities encourage emotional involvement, captivating interactions, and participant acceptance.

Revolutionary Software Tools:

Our tools and techniques were developed over six years in the research environments which defined the evolution of VR since 1989. These tools

- * are proprietary to VEL,
- * are years ahead of the competition,
- * provide unparalleled capabilities for rapid prototyping,
- * provide fast development of functional, real-time inclusive worlds,
- * assure pleasant and functional experiences,
- * extend to future platforms and to future virtual worlds, and
- * provide superior performance.

MARKET ADVANTAGE

The design of *quality virtual world experiences* is integral to all technical and marketing activity, providing direction, specifications and project focus. Virtual Express excels at integrating physical activity with virtual experience, making the experience of virtual worlds feel good.

Our strategic advantage as integrators (makers of wholes) is that we are independent of any single part. The Virtual Express proprietary software works with *any* input or output devices. No competitors have the perspective, experience or tools to be integrators, so they each settle for a piece, a component. VEL can select among them all for the best, change at will, and upgrade rapidly without losing our strategic advantage. We can avoid competition at the component level, while having the essential ability to make the component products useful.

VEL proprietary software techniques give us about two years lead on all competition. This lead comes from knowing exactly what to do and how to do it; we have made most of the mistakes and figured out how to fix them. This competitive advantage is not in "bare software skills", it is in integrated VR systems software.

Virtual Express literally leads the world in integrated VR experience design. To have expertise in the design of virtual experiences, you need to have had long-term access to VR systems, to have had the opportunity to dwell in the virtual world for lots of time, and to have had the mandate to build and improve the experience. There are about four groups in the US who have had that opportunity.

VEL's essential competitive advantage is flexible, rapid prototyping VR design tools and skills. The competition that does have full access to VR systems does not have rapid prototyping tools. We can build, modify, learn, and invent literally 100 times faster than they can. It's like racing a bike (them) against a car (us).

ABOUT THE OPPORTUNITY

TECHNICAL SOLUTIONS

Virtual Express has the technical solutions to establish the VR marketplace. Today Virtual Express has very powerful and general software which supports TrueVR, multiple participants, and interactive entities. These capabilities define what people want (but have yet to experience) in VR systems. They are unique to Virtual Express products.

The software supporting these capabilities is robust and reliable. It is also general, which means that it supports a diversity of uses. The entity software can be used to animate and motivate any kind of interactive creature; the behavior software applies to any and all graphics models. Multiple participant software supports any configuration of users, each user doing whatever he or she chooses in the virtual world. People can roam by themselves, form teams for racing or exploring, and play with each other. The networking software supports all interactions. TrueVR provides system performance which is acceptable to discerning users, and which *creates return business.*

MARKET FLEXIBILITY

The three discriminators establish Virtual Express as delivering superior performance and quality VR experiences, at less than half of the cost of competitive systems. The capabilities support almost any world experience (limited by the capacity of the hardware system). In the rapidly evolving VR marketplace, Virtual Express can:

- * respond in a timely manner to new market opportunities,
 - * reconfigure virtual experiences to meet the changing demands of specific customers,
- and
- * rapidly generate new virtual experiences that provide the market with exciting virtual adventures.

The core hardware and software system provides 80% of VR functionality for *any application*. Games, training, architectural design, exercise environments, exploration experiences, medical applications, scientific visualization, etc. can all be built quickly and efficiently. Different experiences can be run on the same system and are relatively easy to construct using the same software tools. The generality of the software means that Virtual Express can develop new and different applications within months. This translates to a product which can provide varied virtual world experiences at low cost and high profit.

INDUSTRY LEADERSHIP

To date, no company has assumed a leadership role in the development and marketing of VR technologies. Almost all smaller companies are struggling to find a responsive marketplace and funding. Having actively evolved the VR industry over the last six years, VEL's management believes it is positioned (with skill, knowledge, and capital) to organize and lead the emergent multi-billion dollar VR industry. To facilitate this objective, we are designing a program which includes strategic alliances with major corporate partners and acquisition of smaller companies that provide a balanced technology capability.