

WHITE PAPER

Spatial Reality Research and Development

Research and Development in Virtual, Digital, and Augmented Worlds

A Paradigm Shift in Computing and Communication

The Next Step in Cognition



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Internal Feasibility Study (Initial Excerpt Created in 2020 for LANL)

The purpose of this internal feasibility study is to find merit in the idea of augmented reality devices. In the dawn of a new computational era, where computers are worn and not only interacted with at home and work, yet in everyday life and in everyday real situations. We understand the importance of privacy, safety, and security in an era where computers are everywhere, and everything is connected. In this document, we investigate the feasibility of such devices and answer the question of how will we build them? Should we? If and only if, the answer is for the improvement of humankind. We move forward.

Is this plan Technically Feasible?

In the current state of US technologies, devices exist and have been produced in small quantities. These devices resemble the type of technology we are researching. Some of these technologies are being developed by some of the top talents in the world, US-based companies have made significant advancements in Mixed, Augmented, and Virtual Reality. Today, these companies have yet to implement a consumer-grade device that encompasses the “holistic” approach to reality-based computing. Most forms of computer interactions today are digital. In layman’s terms. Two-dimensional. These solutions are hard to understand and not easy to interact with, within 3-Dimensions.

There exists open-source software that allows for motion tracking of objects in 3-dimensional planes. It is this software we plan to use to prototype our hardware and integrated software solutions that can be licensed by the government for military applications.

Military Implications

An information system that displays the status of the chain of command based on their soldiers' actions in the real world, and their interactions.

The hardware that exists which is like these devices is not consumer-grade ready and certainly not ready for military application. However, the technical problems facing these types of Head-Up-Display systems are ready to be tackled by IRIS and the team of scientists, techs, and operational management. The founder has been tracking similar technology for over a decade to better understand the needs of the consumer, and now the military.

The type of military implications are as follows:

- Soldier Mission Awareness
- Officer's Risk Assessment
- Environmental Assessment
- Situational Awareness
- Aggressive Assessments
- Tactical Records
- Target Acquisition & Elimination

Mission awareness is presented to the chain of command. Allowing Commanders to issue commands or information to soldiers based on iris' device assessments.

Consume Implications

The type of consumer implications are as follows:

1. Computer Information Systems
2. Augmented Digital Advertising
3. 3D Computational Design (CAD)
4. Creative Work

What do Consumers Want?

We understand the ideas and nuisances of virtual reality. A secluded head-mounted device that does not allow you to be aware of the real world or interact with it. Consumers are ready for a true augmented reality technology that can be experienced in everyday situations.

Is This Plan Legal?

Ziawe is taking all the necessary precautions legally, and conscientiously to improve the well-being of the patrons' business and Iris' practices. Ziawe will become a legal entity in the state of New Mexico, apply for a Federal Employee Identification Number, as well as follow any legal city and local regulatory procedures as applicable by law.

Steps will be taken for the safety and security of the customer and Iris' patrons' data transmission through the channels IRIS uses. Examples of this include data encryption and limited access to physical devices.

THE TWO SYSTEMS DESCRIBED HEREIN AS **military protocol** AND **consumer device** SHALL BE SEPARATED AS APPLICABLE BY THE LAW.

Is this plan operationally feasible?

Ziawe sees many use-cases for wearable reality-based computational devices. Ultimately, it will be the feedback of the community on how these devices develop over time and how we maneuver the devices into profitability and growth.

The first few device prototypes will be exponentially expensive to develop as compared to the devices we plan to deliver to the consumer. We desire to maintain the systems, then make them affordable by offsetting the cost of the hardware and researching software-based solutions. We plan to partner with Quality hardware manufacturers to make our hardware reliable.

To meet stakeholders' expectations, operational planning will need to meet strict deadlines on device details, research, and development. As well as provide stakeholders with extensive information on how the device's software system will function.

Is this plan Economically Feasible?

There are companies with incredible resources at their disposal working on these types of problems. Ziawe's IRIS has a major advantage over many of these companies. Mainly, we are a start-up, with an incredible potential for exponentially high growth because we are limited in resources. Low resources are low risk, with a higher percentage yield for success and return on investment. Whereas companies with very high resources risk their current profit margins by reassigning resources to new projects.

Is this plan feasible within a reasonable period?

Our research indicates that companies that include GOOGLE, MICROSOFT, INTEL, and APPLE, are currently developing technologies to rival our system. With other smaller lesser-known companies being bought out and embedded into the larger companies.

It is time-sensitive, almost critical, that we gain the necessary access to research time and funding as well as the necessary mind-power to develop our solution so that we can compete in, and lead in the spatial reality emerging industry.

Preliminary Research Analysis

The preliminary analysis shows that although major players in the field of reality-based computing are developing specific solutions for their appropriate eco-systems; IRIS appears to be behind in resources, mind-power, and funding. The founder is increasingly working towards solutions to these three internal business problems at a rate and state that might cause high-stress

levels. Preliminary SELF Analysis is considered a no-go scenario, without the operational lead of an external team.

Project Scope

The project scope encompasses a wide array of specialties that the founder is not familiar with, mainly the manufacturing and distribution of such a device. The higher implications of security and data encryption as well as consumer protection.

A highly skilled team in each field will be required to execute the scope of this project. Teams will include, research, development, infrastructure, manufacturing, marketing, distribution, and support. The six teams will need to coordinate with the stakeholders to encompass a holistic approach to the devices being sold. In all, these seven groups will be required, to work together to provide a successful product to the customer.

The Platform

Imagine, for a second. That you don't have to. That reality can be anything you want it to be. You are in the desert and want to go surfing, you can make it happen from the comfort of anywhere. Now, imagine that you want to conduct a symphony today. Yet, you don't have an instrument, or perhaps you've never played an instrument, or know how to read music. Maybe the problem is reality. Not, you. Although there are many beautiful instruments, maybe the problem is that your instrument doesn't even exist yet. That is cognition.

What are the implications of a system that allows people to do what they want with cognition?

Implications are that the only limits set upon a system are those that are set by the creator of the system, time, and limits of imagination.

Now let's create a universal system. Truly unbiased to one corporate, entity, nation, individual, or deity. The computing system would allow expositions. Expositions are like the net in the

dot-com era, apps in the mobile era, trends in the blockchain, or experiences in virtual reality.

Let's instead focus on seeing what we can play, and what we can create. Learning and growing as a human-cognitive society.

What would such a system entail?

What type of effort would be required to make such a system work?

How would it work?

How much would it cost to build? Why build it?

Where would it be built?

What is the timeline?

Manufacturing costs?

Design costs?

Marketing costs?

Distribution costs?

All these questions have been answered before. So let us peek into the past, embrace the present, and seek the future.

We'll answer these questions in the retro-speculative form.

What is the cost?

The distribution costs run perpendicular to the cost of marketing and parallel to the cost of manufacturing. As the cost of marketing goes up, distribution costs are offset. The higher the marketing spend the lower the distribution cost. More people are willing to spend on the product by the law of supply and demand. As distribution cost goes up so does the cost of manufacturing, and the cost of distribution is affected in terms. The design will play a major role in marketing as well as the product itself. The design seems to run independently of the costs incurred by market research, manufacturing delays, or logistics. Nevertheless, it is expected that all these departments work in synchronicity to allow a successful product to market.

When?

The amount of time it will take to get a product to market will be dependent on three key metrics, these metrics are as follows.

- One, amount of series A condensed funding. With little administrative oversight.
- Two, unrestrictive use of LICENSED technologies, to iterate quickly.

- Three, access to trained personnel, who are experts in their field.

Once these three key metrics are filled, the platform can be sourced in two years.

Where would it be built?

Offering perspective, building it in the USA would be a great achievement. Unfortunately, I honestly believe that unless there were sudden congressional by-laws that allowed the hiring of unskilled and skilled workers quickly without the bureaucracy, the funding had less administrative oversight, and people were willing to put in the physical work. I think it would be best to build the manufacturing plants in Mexico. It would allow for quick access to mid-skilled workers who are willing to work for a wage. Allowing the administrative-level jobs to be done by the U.S. with an 'Engineered in America' seal. It would cut the costs of logistics for massive importation to the USA and Canada. Would create opportunities for neighboring nations.

Why Build it?

Reality. *Reality is all wrong*. Spatial computing will be the future of computers. What does that mean though? Imagine having computers, without having the hardware. At least, minimal hardware. Working with a cloud personal computer, through a heads-up display. Computers, as we know them today, are mostly digital.

In this paper, *digital* means 2-Dimensional, *virtual* means 3D-dimensional, and *Spatial* means Augmented Reality which is digital and virtual merged with reality.

It is important to understand that not everyone can or should use a computer. However, the line between what we think of as a computer has been getting more and more complicated. Is my phone a computer? Is it my tablet? A Watch? Some people have never used a sit-down computer, especially in developing countries. In some countries, mobile phones are the primary form of communication and entertainment for most of their citizens.

Mobile devices outpaced sit-down computers years ago. Think about how many computers you've had. Now think about how many mobile devices you've had. No complicated statistics are necessary here.

As data centers continue to grow to meet the demand of more technically inclined users. To deliver content faster, more reliably, at lower costs. There will come a point where the Datacenter will play a much more prominent role in users' lives. As hardware-based personal computers, gaming consoles, and entire businesses will be run on cloud-native solutions.

We are beginning to see the start of this paradigm trend with businesses like Netflix which started off as a physical shipping service and transitioned to a cloud-based solution, YouTube and Twitch streaming services, Google Stadia the service pushing cloud gaming, and Microsoft's new 360 service, that allows you to work remotely into a cloud Windows machine.

Eventually, all we will need is a spatial computer [hardware device] that will allow us to connect to these services. Oculus is a great example of a device that knows "what's up", and it is trying extremely hard not to be *only* a gaming console. Meta's Oculus is a great device that shows how quickly a paradigm shift can occur in technology. Meta has the resources to tackle any problem they would like to. Oculus should focus on its core-core services. Gaming.

As has been explained, virtual reality is a great experience, but it has limitations. Mainly virtual reality isolates you from real life. A life stuck at home. Spatial experiences are where this paper comes into play. Imagine, going to a Football game and seeing projections of the player that scored in a larger-than-life format, right in your sight. While everyone in the vicinity is also experiencing the same thing. Get statistics for those players, see their favorite bands, learning more about your favorite players. Now Imagine, battling Pokémon **in that same stadium**, after the game. Using voice commands and seeing your pocket monster attack other monsters, with spectators. Those are only two expos. Imagine an expo system that allows authoritative figures to track crimes in real-time on their sight. We aren't talking Robocop, close though, just without the whole cyborg merging with technology pain.

Actual Cost

Forecast expenses are expecting a total startup cost of **\$733,900** in the first and second quarters for the purchase of land and building [\$582,000] and initial start-up expenses. Startup costs include computer equipment, phones, market research, apps development, stationary material, patents, branding, and consumption.

Payroll expenses will be Approximately **\$1,006,833.33** for the Fiscal year 2022, with an initial increase in Q3 to approximately **\$143,844.00 per month** due to initial hiring, and platform development efforts.

Payroll expenses shall not exceed \$7.3 Million in the first 5 years.

The fiscal year, starting in Jan 2022 and ending in December 2022 will have a total expense cost of **\$48.18 Million** with an approximately **\$7 Million** burn-in rate per month. Approximately **\$20.13 Million** of those expenses goes to income taxes. The other half goes to Direct Costs, Payroll Expenses, and Marketing Expenses.

The key assumptions are that the initial 35 key personnel will be highly trained in their respective fields and contract with the company for an average of 3 years. These include programmers, systems architects, designers, and similar experts. Executives will stay with the company from the startup stage to the initial launch and product commercialization and customer acquisition process. A very difficult assumption to make and consider is that we are expecting and planning for revenue as soon as the hiring and manufacturing process begins, we will accomplish initial revenue by acquiring Federal grants. The grants will provide us with an initial *boost* and a type of cash flow that will be necessary for this platform to succeed. Auxiliary federal Grants will be discussed further in this paper.

Revenue

Planning for 3 types of revenue streams for the first 5 years. In their simplest forms, these would fall under main products. Platform. Subscriptions. Expos.

The platform is expected to sell for **\$1999** per unit, costing us on average a direct cost of **\$800** per unit, built on scale. Starting in June 2022 with a price increase of **\$99** per year for the first 5 years and selling *10,000* the first month and increasing 20% in sales per month. We are looking at approximately 250,000 subscribers for the first fiscal year for partnerships that enable the

device to work with 3rd party streaming services and 3rd party computing services. On average subscriptions have a 33% leverage. With a very high 50% churn rate for subscription services.

There will be a **\$21.19 Million** revenue on average **starting Q3 '22**.

The total revenue stream for the first 5-years is expected to be \$1.14 Billion

Spatial Reality Behavioral Pattern Recognition and Auxiliary Aid Grant

Solving Behavioral Problems in Digital Worlds

Elevator Pitch

Spatial Reality behavioral problems have become an issue as digital worlds continue to expand to mobile, wearables, and always-on technology. The always-on, always-connected digital world is becoming a way for people to express themselves in ways that have never been accomplished before at any time by humanity. This freedom of expression can sometimes lead to unwanted outbreaks, abusive phrases, or physical expressions that are unwanted in public settings.

We focus on those individuals who suffer from behavioral issues. Using Augmented Reality, we provide an Auxiliary Aid to help people with behavioral disabilities. We are attempting to address the cognitive issues that people with behavioral disabilities suffer from.

Simply, we are helping those with behavioral issues understand their disability and help them function in everyday situations. What makes us different is we are solving these issues using Augmented Reality worlds, not traditional medicine, therapy, or medical instruments.

Helping those that suffer from behavioral problems by providing auxiliary aid through an Augmented Reality device, our company is positioned to help societies become less violent and therefore reduce crime and anxiety in communities. The current state of Augmented Reality applications focuses on traditional medicine and medical practices. We are hoping to push the boundaries on what is truly possible with AR and the possibilities of AR in mental behavior.

Commercial Opportunity

Moving forward, the two commercial applications and one defense implication are as follows.

First is the implementation of an “Auxiliary Toggle” in which current devices that use Digital Reality are given an update-based solution that will be provided to individual devices to help prevent threats. Working with Digital Reality providers we will provide a type of plugin-in system that allows the user to toggle Auxiliary Aid.

In layman’s terms, the solution is a partnership with current digital companies to provide an integration of our solution into their system.

Second is a subscription-based service where users are allowed to register and enable Maximum Auxiliary Aid, a proactive, auxiliary aid that gives the user a heightened understanding of their environment, people, and events.

Users with Maximum Auxiliary Aid enabled are allowed to register themselves as behavioral agents, which in turn allows others to be aware of their disabilities. Completely *optional* in-less otherwise instructed to by authorities. Other types of agents we are developing are:

- **Social Agents** – communal aspects and regular users who are reachable.

(Self-Identity)

- **Authoritative Agents** - for military and policing ONLY.

(PRIVACY and SECURITY is PARAMOUNT for Authoritative Agents)

- **Verified Agents** – for artists, athletes, politicians, and public figures.
- **Academic Agents** – for students, faculty, and alumni.

An example of this feature is when a musician registers himself as a verified agent. This allows others in public to identify him as a Musician and bring up his music or concert dates while in the vicinity. “Vicinity” is the key take-away, the feature is spatial-aware meaning it is only to be used in public, for public information.

If for instance, an authoritative agent by-law forces an individual to register as a sex offender, the system will keep track of this person’s digital imprint. If by-law the act states that others must be made aware of this person’s sex-offender status, location, and or other information, it is to be so. The same applies to criminal injunctions that REQUIRE such agents to exist and *are only to be implemented by authoritative agents, self-identification, and/or the courts.*

Similar market opportunities have been validated by social media websites and apps, ours being a “social media *service* that happens to help”. Our customers consist of self-identifying entities who want to make people aware of their agent status, whether negative or positive. By providing a free tier, an advanced subscription-based tier, and a government auxiliary tier we are positioning ourselves to become the leader in AR and AR social experiences.

The competition offers spatial experiences yet does not provide self-identity and social connectivity features. It is possible that in the future more social media companies will transform to AR experiences, and therefore provide more competition.

Risks include false-positive identities, cyber-criminals, and the blatant non-use of the service. Our commercialization approach itself is to offer these types of protective, proactive features not only on its IRIS platform yet on traditional digital worlds, PC, AR, VR, MR.

Economic benefits include the creation of Authoritative Jobs, System Maintenance Jobs, and Social Digital Jobs. The economic implications are as steady fast as those of the dot com bubble, in the hundreds of billions of dollars.

As our approach evolves, our core products stay the same.

- Augmented Reality Platform
- Auxiliary Aid (Service)
- Sponsorships (Ads)

To meet our commercialization approach, we are seeking the ceiling amount offered by the grantor, so that we may continue to do R&D and implement our system. It is an effort to commercialize the product within 2 years. (2023) so that we may fully develop our product we are ALSO seeking monetary cash flow and investments from third-party investors.

Technical Solution

Our implementation is at the conceptual stage. We have the necessary technical skills to implement a technical prototype. Yet, to fully develop the solution for commercialization we require funding. Our prototype will consist of using high-level pattern recognition libraries that are open source, to bootstrap the initial social implementation. The auxiliary aid implementation will require security-encrypted channels to provide the highest levels of security. Acquiring funding will allow us to hire a Security Expert to dissolve the technical challenges we face and bring our solution to market. Hiring a security expert for encryption research is one of the

scientific approaches we will solve in Phase I, as our team currently consists of two technical experts.

We are in contact with local agencies to assist us in acquiring patents for the technology we are developing and to protect our Intellectual Property. As of today, we do not have NSF lineage, and we have not been accepted to I-Corp cohorts.

The technical objective of this project is to detect inappropriate content in online communities, virtual worlds, and augmented reality. Provide a proper method for moderating such content.

This will be done by creating a type of system expo creators can implement into their software using a programmable “plug-in” also known as an API, which is outlined in the technical discussion in this paper.

The API connects to software that can be implemented into games, apps, and software that app developers can then use to implement our services into their applications.

The Team

Founders consist of Jonathan Caraveo, a Full Sail University alumnus, who earned his Associate of Science degree in Mobile Development. A relevant member of the sciences, who is experienced with programming mobile technologies and who has technical expertise in Augmented and Virtual reality. Jonathan has experience distributing Applications for mobile devices, programming mobile devices relevant to this project. Ex: Oculus platform and iOS AR Apps.

Chris Neal is a technical lead, whose experience with server-network infrastructure will allow our research and development team to function at a technical level. Chris will bring

much-needed functionality to the project, functionality such as server infrastructure fallbacks & network-server uptime (Back-ups), he will provide computer networking capabilities for our research team, and the technical expertise required for this type of project to succeed.

Founders have an incremental interest in augmented reality and behavioral social patterns. Bringing their experience together along with their educational endeavors, career skills, unprecedented interest in augmented reality, and social connections, will allow the proposed project to succeed not only in the immediate future, yet also in the long term.

In the next five years, we plan to have created a successful system for behavioral pattern recognition that is implemented in all Augmented Reality and Virtual Reality devices. Therefore, reducing the amount of criminal, and unwanted activity in digital worlds, which in turn will reduce anxiety in social communities. It is our effort to have 5 million users in the first 5 years, we will exponentially scale our business model by partnering with existing AR and VR manufacturers.

Although we are an existing operation, this proposal will run in parallel (side-by-side) to our execution of a new Augmented Reality platform. The research and development we are executing are not considered incremental to a proven concept, rather it is a completely new field of study that requires high-risk, technical, and engineering research. Our efforts are to create a new type of service that will lead to a higher economic impact in America. We will highly focus on Augmented Reality which is an emerging technology with proven high-gain potential. Use of funds will NOT include business development, market research, sales, or marketing. The use of funds will strictly focus on Research and Development efforts, which are: To develop a new service that will allow users to self-identify as a behavioral risk, and/or to identify those who are a behavioral risk. To research exponential methods of keeping our company highly competitive

in this new field. To increase our company's economic bottom line. We will not be executing clinical research and not be involved in drug development efforts. We will not be executing tests of an existing product.

Revenue history in the past three years consists of founder bootstrapping economic efforts. Acquiring digital credit from New Mexico State University for website infrastructure. We do not plan on having any subcontractors at this point. Rather we will focus on using existing technical skills and directly contracting 1-2 software engineers to help develop the behavioral recognition system. The engineer's contribution will be code, expertise will be software and engineering, and affiliation to our company will be strictly professional.

Technical Innovation

The innovation consists of *active* monitoring of virtual reality and augmented reality applications by parents or users; allowing, toggling, or "turning on" Maximum Auxiliary Aid. The "feature" allows for pattern recognition of sexual, explicit, or illegal content, based on the pattern recognition capabilities of the system. It is strictly an "explicit recognition system." Meaning it can detect images, videos, and audio patterns that are considered explicit based on the user's level of explicit preference. It can then automatically report such content for proper moderation, if desired, by the user or parental preference.

The commercial opportunity is building a virtual area where users can feel *safe* to play or work by having a "record of accountability" to negative material. So that they can be themselves and express themselves in their virtual identities while doing so safely. Digital Virtual and

Augmented worlds will become the norm as more people begin to play, work, and create in those worlds.

As digital technology continues to grow, virtual worlds become more prevalent in our society. It is important to understand that virtual worlds will play key roles in everyday mental and physical health. Therefore, a record of accountability is necessary for virtual worlds to be adopted more widely by the public.

Technical Execution

The technical objective of the grant project is to detect explicit content if enabled by the device user or parental unit. Then have a method of quickly reporting such content to moderators. The community objective is to provide safer online, virtual and digital areas for all forms of computational users.

We are proposing a type of Software Development Kit also known as an SDK to go along with an Application Programmable Interface (API) that we will license to companies to implement in their applications; we would like to become the “standard” of explicit content recognition.

Software Execution

Software testing is a key concept of the Software Development Life Cycle, testing is crucial to an information systems’ ability to succeed. Testing is done early and often in agile development. With the help of the Master Test Plan, this paper will explain the process of testing applications

using an MTP. The purpose of testing is to confirm that the system satisfies requirements.
(Valacich and George, 2017)

Master Test Plan

A Master Test Plan is a collection of documents that include, a unit test plan, an integration test plan, and a system test plan. During implementation, these documents are executed or put into effect so that the testing can be performed.

Specialized Personnel

The organization has specially trained people who supervise and support testing. This means that this personnel is responsible for documentation and development of the testing plans, establishing standards, helping with test case scenarios and executing actual tests, and reporting on those tests.

Testing Process

When testing, we must test all the metrics available for testing. This means at a minimum anything that could go wrong, potential problem areas. We must pay attention to many different aspects of a system such as response time, response to boundary data, response to no input, response to heavy data. We must analyze these different processes and see if they are functioning to full capacity to not cause problems during production runs.

- 1. Testing for Quality**
- 2. Agile Testing**
- 3. Training Materials**

There are three methods by which training material can be delivered to users of software systems. The first is through documentation, the second is through training presentations, lastly is through training software.

Documentation

Training material can be delivered to users via documentation of the software. It is up to the user to read the documentation and become familiar with the system they are using. This is probably the least effective and most time-consuming way of providing training material. Yet, it is the most thorough.

It is possible to detect faults in advance and deliver the system with higher quality. Testing is a very important part of software development and should not be ignored, it reduces the cost of the software development life cycle in the future. (Souza, 2017)

In agile, testing is done in multiple phases of the project. After every milestone to make sure the software meets the scope.

Presentation

Providing presentations through a presenter is more effective than giving users manuals for them to study. They will retain more information visually and learn more about the software that they are trying to master.

Training Software

Through training software, one allows the users to experiment with the software before they enter production which allows for error margins without consequence. A very good learning experience.

Software Support

Software needs to be constantly monitored, updated, and maintained. Some of the ways that software is supported after it is implemented is with software updates, updates give new functionality to the existing software. Software patches, that fix any security holes that might be present or could be exploited by hackers.

There are also non-traditional support options, for instance, customer service chat, or ticket-based technical support. When a user does not know how to use the system properly or does not know how to use the system in a way that they need; customer support would fall under this category.

There are software updates, software patches, customer support, there could also be other services like monitoring and software maintenance, and user testing.

Monitoring would fall under information system administrative tasks, making sure that all systems are green, or running efficiently, a combination of up-to-date and patched.

Maintenance would fall under information system technician tasks when something breaks and requires a fix. Maintenance support is where this is done.

Technical Ultimatum

Ultimately what we want to accomplish with testing is to get all the bugs out, to get all the failure points fixed, and improve quality. Documentation and user support is a way of accomplishing this ultimatum so that it is a unified process when creating information systems.

The advancement of Virtual and Augmented Reality promotes the well-being of the American People. During the pandemic allowing them to interact with one another in a safe and controlled manner. Advancements in online discovery and safety understanding while promoting teaching, training, and learning, in children. Broaden participation of under-represented groups, like low-economic Latino, Anglo, Asians, Afro, and Natives. Our Research enhances the infrastructure for research, education, and computational, rational, connected, and disconnected ways.

We are NOT interested in broadening dissemination to enhance scientific and technological understanding for its own sake, we are interested in applying scientific principles to the real world.

Intellectual Merit

Our approach is a transformative concept that will allow users to recognize and identify people that provide behavioral risk and contextualize how they should proceed. Using Global Positioning System (GPS) for location and positioning, Augmented Reality for visualization, and a user database for self-identification.

We have *already* prototyped a similar system in an interactive application that allowed the use of location and mobile networking, to provide a type of spatial interaction. This system does NOT expose the direct location of the users, instead, it allows users to see that there is someone “near” or in the “vicinity.” Once again, it does NOT expose direct location. The idea of the vicinity is the ***technical idea*** that sets our product apart from competitors. In case the users want to be *more interactive*, they are allowed to expose their direct location.

The system was used in a Game, yet due to technical risks associated with this type of application and its inherited security implications, it is not released to the public until we seek further clarifications and technical expertise, governance, and clearance.

We will not be “Testing,” we will not be conducting “Clinical Trials,” we will be *Training* our system to learn to detect behavioral patterns that are not normal. This training will be conducted by our technical team and include those who will register and want to participate in our closed research.

According to XRToday.com: “By the end of this year (2021), the [Virtual Reality] shipments are predicted to reach more than 11 million units [...] In 2020, the VR market had a value of around \$17.25 billion according to Mordor Intelligence. By 2026, the experts believe it will be worth around \$184.66 billion, representing a CAGR of 48.7%.” This statistic does not

include AR users, which we believe will be exponentially higher. Conservatively, we are looking to capture 2 out of 11 VR users, and 3 out of 10 AR users. This leads to a roughly a customer market of around 5M users.

In Phase I, we will be conducting a series of experiments that will focus on answering key metric questions.

- Is this service socially acceptable?
- What are the technical requirements for a secure environment?
- Is this product commercially viable?

The critical milestones that must be met in Phase I:

1. Researching if the service will be socially acceptable to the public and widely accepted.
2. Providing a safe technical environment where people can co-exist with the product.
3. Proving the economic impact of such commercial service.

Broader Impacts

In conclusion, as digital worlds expand to virtual and augmented reality. We must address the behavioral problems that are consistent in these VR/AR environments. In turn, by implementing such a system we can address behavioral issues in individuals with behavioral disabilities. Which as a result will allow them to interact with others better, and become beacons in their communities instead of odds.

Providing a type of “API plugin system” will allow software developers to integrate our auxiliary aid solution into their applications. The “beacon” system will allow users to track others who have behavioral issues or who want to self-identify as agents of such kind. Once again the economic implications are as steady fast as those of the dot-com bubble, creating system admin jobs, and creating billions of dollars worth of economic impact.

The goal of this project is to detect inappropriately explicit content in online communities, virtual worlds, and augmented reality. Provide a proper method for moderating, recording, and storing such content for proper handling, either be it parents, moderators, or authorities.