Whitepaper
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LAMPIX

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EXECUTIVE SUMMARY

Project Overview

Quality Computer vision is an enabler for a very large set of applications, among which many are in the AR space. One such application is Lampix, a hardware and software solution that transforms any surface into a smart, augmented reality surface freeing human-computer interaction from digital screens. The Lampix platform is poised to be the foundation for the next generation of user experiences in retail, office, gaming, and many more environments by bridging the gap between the physical and the digital.

Computer vision and machine learning - Datasets

While the Lampix device is unique in its form factor, it relies on computer vision algorithms to recognize objects in the physical world and create augmented reality. This is similar to quite a few other AR systems (glasses, tablet-based, etc.), they all need to understand what they see before being able to augment that. This understanding requires large datasets of examples, such that algorithms (eg. Deep neural networks) can be trained to do the recognition.

While working on Lampix we realized the scarcity of such datasets. We were missing a general-purpose market for such datasets with a self-balanced demand & supply system. We always ended up gathering the data ourselves (and actually created software to do this comfortably on Lampix). But the idea of the general purpose market got stuck in our heads, and hence we started building the PIX ecosystem.

Where do we need help?

We are building the “PIX ecosystem”, which is the first blockchain-based 'image mining' network for augmented reality and other computer vision systems. To enable Lampix and other AR devices to reach their full potential we need to build a billion-image-and-description database, which will help in training algorithms for classification, detection and segmentation.

Why is this important?

Computer vision and machine learning are completely dependent on the availability of data, which is curated and described. We are therefore building the largest database of computer

vision and machine-learning data composed of images with descriptions and segmentation maps.

Autonomous and fully automated

To build a large enough database that is meaningful it has to be built in an autonomous fashion. No central party has the means and capability of checking every single image and description for details. Therefore, voting and verification mechanisms that are distributed are the keys.

Decentralized

Data needs can be different from one environment to another. However, some data might actually be useful in more than one environment. The database relies on local providers and local consumers of the data. Our ecosystem can support both scenarios and will balance itself towards the most useful data. This would be most effectively and economically achieved through decentralization.

A market

For the database to be useful in a timely manner, we are building an efficient token-based market, which will reward people who provide data to the database and will charge people modestly for the usage of the data. We call this token as "PIX" which will be a digital currency used for the transactions within the market.

Lampix device is the first commercial use case for the market for computer vision datasets. While Lampix will be the easiest way to submit or consume data, any other computer vision or machine learning system will also be able to interact, through an open API, with the database and earn tokens or pay for the usage in tokens.

Existing traction and potential

With Lampix, our initial focus is on the enterprise sector, and we plan to do the same with the PIX ecosystem. Lampix is already generating revenue and great traction in this sector. Our first product on Lampix is an in-store product recommendation system being used by a large retail company. We are working on the first office applications together with Bloomberg and NYC Media Lab.

Lampix was accelerated at Highway1 in San Francisco (http://highway1.io/startup/lampix/) and the winner of AR & VR startup competition at SXSW (Festival, 2017). We were also

featured at TechCrunch Disrupt and by a few other media outlets. Through this, we already have a pipeline of 185 companies many of whom are in the Fortune 100.

We will leverage this pipeline and extend it to the PIX ecosystem.

The token launch

We are doing a crowdsale of our token, which we call "PIX" to start on August 9 2017. This will probably be the first "image mining, augmented reality" project built on top of Ethereum blockchain.

For image miners, we are going to charge PIX tokens to get a Lampix device and pay tokens to mine useful {image, description, segmentation} sets. We will also pay users in tokens to vote on these images. We use computer vision algorithms to approve or reject images before they are submitted to the vote. People will also use the tokens to purchase Lampix apps or earn PIX token by creating Lampix apps.

Our Vision

"Our vision is a Lampix in every home, office, store, and factory."

Our Mission

"Our mission is to free humans from digital screens."

Objectives

- To raise at least $60 million through a token crowd sale, for the development of the PIX ecosystem and Lampix as the reference platform for PIX
- To build a billion-image-and-description database by the end of 2018

INTRODUCTION

Computer vision is completely dependent on the availability of quality datasets for training and testing algorithms. There are a few databases of datasets currently available in the market that can be utilized for this purpose. However, these existing databases are made for specific purposes and often found to be proprietary, expensive, or unobtainable.

Our solution to this problem is to build a large database of computer vision datasets composed of images with descriptions, which will be independent of any central control.

We want to create a digital currency token, "PIX", that will reflect the value of modern computer vision datasets. The database together with the PIX token will create an ecosystem where the dataset creators will earn out of creating datasets while dataset users have a single place and market to access this data.

Lampix as a the reference for PIX

To get the best of the PIX ecoystem and platform, we need a reference implementation which showcases the usage of PIX in all possible ways. As we have been working on Lampix for a few years now and the idea of PIX came while doing this, we will use Lampix as this reference device and platform.

Lampix contains a projector, a camera, and a cloud-connected computer. We have already applied for a provisional patent for the device, which is currently pending.

Image: A Lampix on a table

Lampix videos - introductions and use cases

Lampix platform explained

Link: https://www.youtube.com/watch?v=4r8lxnx2wXM

What Lampix does

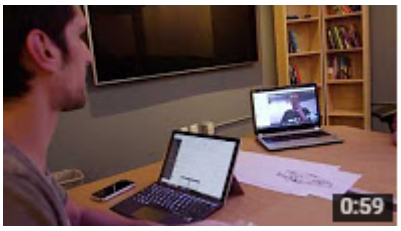
Link 1: https://www.youtube.com/watch?v=IA7wVNBBa8E

Link 2: https://www.youtube.com/watch?v=vNEZIvRqmMQ

Use case – collaboration

Link: https://www.youtube.com/watch?v=_Q4N8WhkX_A

Use case – meeting

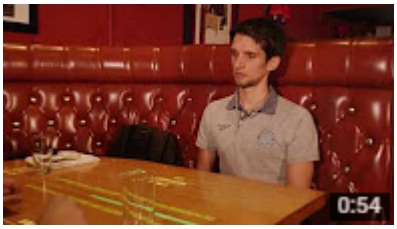


Link: https://www.youtube.com/watch?v=YHiEXinnWy4

Use case – office

Link: https://www.youtube.com/watch?v=xCK8045kDf0

Use case – restaurant



Link: https://www.youtube.com/watch?v=WdnHTuMCK4g

Use case – gaming

Link: https://www.youtube.com/watch?v=ydaAUMO6lSU

Lampix makes these use cases possible with the use of computer vision, machine learning and datasets exactly as those which will be mined in the PIX ecosystem.

The PIX Token

The PIX token puts a value in computer vision datasets. This value will be reflected in the core of many final products such as Lampix, but also any other AR device or system.

We are building a crowd-mined {image, description, segmentation} database of at least one billion images on the blockchain. This will probably be the first "image mining" augmented reality project built on top of Ethereum blockchain.

Based on experiences of companies like Google with their machine vision database of 1-billion-data points seems to be a size that is meaningful and useful for a large set of systems and applications. Therefore, we want to build a billion-image-and-description database.

The Ecosystem

The ecosystem created by PIX token and Lampix device will pave the way to a new market where the value of PIX is ultimately determined by the market forces of demand and supply of datasets on the Ethereum blockchain. Therefore, when the demand for datasets grows, the value of PIX will also go up similar to any other open market mechanism.

This ecosystem will function without any central authority or control. It takes care of all the stages of a dataset during its lifetime from the creation to the consumption by users.

We believe that this ecosystem will become the central marketplace of datasets for the augmented reality market for the development of different AR applications and products other than our Lampix.

LEADERSHIP

Our core team members have proven track records of entrepreneurial and technical skills and speak multiple languages.

The other team members have expertise in multiple areas including entrepreneurship, technology, business development, and sales and marketing. In addition, all members have prior experience in either founding or working for startup companies.

Core Team

George Popescu | Founder/CEO

George has his roots in science and engineering. He has obtained three Master's Degrees: a Master's of Science from MIT working on 3D printing, a Master's in Electrical Engineering and Computer Science from Supelec, France and a Master's in Nanosciences from Paris XI University. His scientific career has led to about 10 publications and patents.

George has a proven track record of entrepreneurship. Over the last 10 years, he has founded multiple companies in online lending, craft beer brewery, exotic sports car rental space, hedge funds, peer-reviewed scientific journal, etc. He advised 30+ early stage start-ups in different fields. He was also a mentor at MIT's Venture Mentoring Services and Techstars Fintech in NY. George is originally from Romania and grew up in Paris, France.

He is also the founder, CEO, and Editor in Chief of Lending Times, a media and affiliate marketing company in the peer-to-peer marketplace, and alternative lending space. Lending Times has won the Best Journalist Coverage from the LendIt Industry Awards on Tuesday, March 9, 2017. The other nominees were Reuters, Business Insider, deBanked, Bankless Times and Tradestreaming. The award was earned for "the journalist who has provided the most insightful and original coverage about lending innovation and fintech."

He is also an advisor of FirstBlood, an eSports-Blockchain company, and Chairman of the Board of Advisors for Gatecoin, a blockchain asset exchange in HK. He also advises about 12 other companies in finance.

Previously he has been a partner in LunaCap Ventures, a hybrid early stage growth capital fund.

In 2014, he sold and exited his most successful company, Boston Technologies (BT) group. BT was a high-frequency trading and inter-broker broker-dealer in the FX Spot, precious metals, and a CFDs space company. He was the Founder and CEO, and he boot-strapped it from $0 to a $20+ million in revenue without any equity investment. BT was the #1 fastest growing company in Boston in 2011 according to the Boston Business Journal and the only company being in top 10 fastest in 2012-13 as it was #5 in 2012. BT has been on the Inc. 500/5000 list of fastest growing companies in the US for 4 years in a row. After the sale, he became Head-of-Strategy for Currency Mountain (www.currencymountain.com), a USD 100 million+ holding company focused on retail and medium institutional currencies.

Boston Business Journal has named him in the top 40 under 40 in 2012 in recognition of his business achievements.

Mihai Dumitrescu | Co-Founder/CTO

Mihai is a software engineer by training. He obtained his Bachelors' degree from Johannes Honterus in Romania in 1999 and currently reading for his Ph.D. in computer science. His specialties include high-performance scalable software architecture & algorithms, computer vision, machine learning, deep neural networks, P2P systems and algorithms, and enterprise content management.

Mihai is the Founder, CEO and CTO of Rosoftlab since 2006, which is a research and development firm in computer vision, augmented reality and related mobile and web apps. Its products and services are used by clients in Germany, Switzerland and many other countries. Employing more than 20 people, Rosoftlab counts among its clients Migros, the largest retailer in Switzerland. Rosoftlab's continuous research and development has led to the creation of multiple companies, such as VanillaNAV, an easy to set up indoor navigation system.

Mihai's early experience includes working as Senior Software Engineer at CARUS srl being responsible for software architecture and database design for the development of an ERP system. Mihai was born and grew up in Romania and later moved to the USA.

Lampix software development team

Dorin
DANILOV

Bogdan
BUDESCU

Silviu
CONDRUZ

Dzmitry
VARHAN
Hardware

Mircea
NANES

Anamaria
DANCIU

Lampix business development team

Kyle
POTTER
Marketing

Florin
MIHOC
Business
Development

Lampix's software development team is composed of additional 15 part time software developers on an as need basis.

Board and Advisors

Cristina Dolan

Cristina Dolan is the founder and CEO of InsideChains, which works with organizations to digitally transform business models through blockchain ecosystems with economic layers that offer members greater visibility, richer data and new business models. In the early days of the Internet, MIT Media Lab alumna, Engineer and Computer Scientist, Cristina Dolan, co-founded OneMain.com, which grew to be the tenth largest ISP after a successful IPO. At OneMain, Cristina served as the provider's Geographic Communities Division President and Chief Strategic Alliances Officer. In only five months, she conceived and built the OneMain cornerstone, Geographic Communities, into a profitable business. At its launch, the company's IPO became the largest Internet public offering at its time, surpassing Amazon's and eBay's respective IPOs.

As a former executive of a global FinTech software company with a SaaS solution for institutional multi-asset financial trading, she understands the value of a market ecosystem and the growing regulatory requirements for transparency and best execution. The FIX Trading Community invited her to join the Digital Currency/Blockchain Working Group to help identify, analyze and define use cases and integration points for digital currency and distributed ledger technologies across the spectrum of capital markets requirements, and recommend best practices for FIX implementation and usage of this emerging technology in financial markets. Her passion for blockchain and its ability to transform global transactions extends beyond just financial applications. As an advisor to several initiatives for supply chain, provenance, transparency, transactions and compliance, Cristina sees blockchain as revolutionary architecture for people and organizations to transact more efficiently and transparently at a time when there is a lack of trust. She is a recognized trailblazing authority and Internet pioneer, and is often invited to speak about the evolution of networked technologies and her success building products and companies. The MIT Center for International Studies, World Future Society, Barclays, Turkey Future Day, CEMC Council Innovation Summit and Battle of the Quants 2017 engaged her to speak on BitCoin, Blockchain and the Global Economy. She is a member of the Forbes Technology Council and recently wrote about Cybersecurity as a Global Threat to Democracy. In the fall of 2016, she was a judge at an IBM Blockchain Hackathon.

Over the past two decades she has been organizing events around the hottest trends in technology with industry luminaries. As Chair of the MIT Enterprise Forum of New York, she has hosted several events with blockchain industry leaders discussing Blockchain and Smart Contracts, Digital Trust in a Blockchain World and Trust::Data as it relates to FinTech and HealthTech.

Career highlights include serving as the President and CEO of the venture-backed MIT spin-out, Wordstream, focused on multilingual messaging. Cristina has also held executive roles at IBM and Oracle where she led sales, business development, and product marketing, winning numerous leadership and sales awards. She was a senior executive in lead technology roles on the founding teams that launched the first Hearst Magazine site (HomeArts) and several ABC/Disney Internet properties including the one of the first Internet streaming audio and video sites in partnership with RealAudio. Cristina has been an investor and adviser to several start-ups and MIT spin-outs, including dmetrics which offers a sophisticated AI platform and decision engine for consumer analytics, sentiment and microtargeting, utilizing unstructured user generated content and was a Rudyard Partners Fund General Partner focusing on mobile investments.

In October 2013, Cristina launched Dream it. Code it. Win It., a non-profit organization to promote creative problem solving within computer science education and rewarded the winning student teams with over $250,000 in cash and prizes over three years. Traders Magazine honored Cristina for her efforts in 2014 with a Charitable Works Award for the program. In 2015, Dream it. Code it. Win it. won four Stevie Awards, a Gold for Organization of the Year and three Silver awards for Startup of the Year, Female Innovator of the Year and Female Executive of the Year. She was recently been honored with a 2017 Harold E. Lobdell Distinguished Service Award from MIT for her work in promoting computer science education. As an advocate for computer science education, her TED talk 'Just Solve It', addresses the value of being an engineer and solutionist to create opportunities.

Cristina earned a Master of Media Arts and Science from the MIT Media Lab, where she focused on interactive information and storytelling. She also holds a Masters of Computer Science Engineering and a Bachelors of Electrical Engineering with concentrations in Computer Science, Communications Technologies, and Business. Cristina is bilingual with fluency in English (native-speaker) and Spanish.

As a member of the US Bobsled and Skeleton Federation in 1992, Cristina placed first in the US National Championships and Empire State Games in Skeleton. In 1990, she competed in

the World Cup Championship in Konigsee, Germany, earning second place among the female competitors.

Catherine Barba

Catherine is a French entrepreneur based in NYC since 2015, when she launched the PEPS Lab, a Retail Innovation Center that discovers the newest, most promising Omni-channel practices, from major retailers to fashion brands. PEPS Lab has a rapidly growing list of major retail brands, of both French and American origin, including Orange, AccorHotels, L'Oréal, Axa, L'Occitane, and Nespresso.

Barba is the author of several books about e-commerce and retail, including "2020, the end of e-commerce" and "Stores are not dead".

She is considered to be a digital pioneer in Europe and has founded several digital businesses in France. Her consulting firm, Malinea, was acquired in 2012 by the founders of "vente-privee.com," one of France's first unicorns. Her previous company Cashstore, a cash-back website partnering with over 1,200 e-commerce merchants, was acquired by Plebicom Group in 2010.

Barba serves on the board of several successful tech startups, including Leetchi, Reech, Retency, among others.

Since 2009, she serves as a regular commentator on one of the leading French News Programs, BFM Business. In 2014 launched a TV program series to promote women entrepreneurs in France (Entreprendre C grandir).

As a thought leader in digital entrepreneurship and digital transformation, Barba had over 200 speaking engagements in 2015 alone. She was named one of 50 most influential figures in Europe's digital economy in 2015 and 2016 and in 2014 one of three most influential female figures in France.

Chris Dannen

Chris is a founder and principal of the Investment Manager. The Investment Manager has successfully raised three (3) vehicles, Iterative Instinct Fund I, L.P., i2 Storj SPV, LP and Iterative Mining, LLC. Prior to founding the Investment Manager, Mr. Dannen was an independent strategy consultant. He has engaged clients including Bloomberg LP and Quartz.com (Atlantic Media Group).

At Bloomberg, Mr. Dannen worked with the infrastructure engineering team to collect ethnographic research from senior engineers, which could be used to improve recruiting tactics. At Quartz, he worked with the Senior Director of Branded Content in order to come up with enterprise-software focused content franchises for clients like HP and Hitachi.

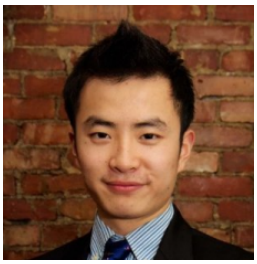
Before consulting independently, Mr. Dannen was a Senior Strategist at Undercurrent LLC, a 30-person management consulting company which was acquired in 2015. During his time at Undercurrent, Mr. Dannen developed long-term technology-focused business tactics for C-suite clients at American Express, General Electric, ARGO Insurance, and Pepsico.

At Fast Company magazine Mr. Dannen served as senior technology editor for two years, launching a content vertical aimed at engineers, and building out a hackathon sponsored by Target. As an entrepreneur, he co-founded an iOS development shop in 2013 called Sneakers Agency in Brooklyn, NY, which continues to operate today.

Mr. Dannen began his career as a technology reporter for CBS News. He has authored four books, the latest of which is entitled Introducing Ethereum and Solidity: Foundations of blockchain and cryptocurrency programming for beginners. Prior books covered iOS development and design.

A self-taught programmer, Mr. Dannen holds one provisional patent on a computing hardware device for video distribution. As a student athlete on the Men’s Crew, he graduated from the University of Virginia in three years with a degree in English Literature. He holds a certification in editorial publishing from Columbia University’s School of Journalism.

Joe Zhou



Joe is the CEO & Co-Founder at FirstBlood, an innovative Esports platform that lets players challenge the field and win rewards. Before that, he has been the founder and CEO of several startups including Alt-Options LLC, a financial service company that strives to solve the liquidity problems related to the developing virtual currency derivatives market. It worked with banks, exchanges, private institutions and international companies to help them leverage cryptocurrency and blockchain.

Joes has a background in finance and investment banking. He has a Bachelor's degree in finance & entrepreneurship from Boston University Questrom School of Business and a Chartered Anti Money Laundering Specialist (ACAMS).

James Haft

For the past 30 years James F. Haft has been at the forefront of the global investment banking private equity and Venture Capital industries. During this period, his focus has been in the areas of emerging market and early stage finance in the digital, Internet, wireless and mobile media, technology and communications businesses; finding and developing opportunities globally and helping those businesses access the USA and global financial markets to achieve their global ambitions. He is advisor to over 25 Internet and Venture-backed entities, mentor in New York at 500

Startups and TechStars, co-founder of NXTPLabs.com, the most active early-stage investor and accelerator in Latin America, with 170 investments and $50 million in investment capital from sources including the IDB and World Bank, managing director of a leading NY-based Internet-focused merchant bank and founder and managing partner of a successful early-stage VC fund.

In 1996, Mr. Haft founded Pacific Alliance Capital, (www.PALcapital.com), a leading NY-based merchant bank focused on advising and investing in International and Internet businesses with offices and partnerships in New York, San Francisco, Miami, Beijing, London, Hong Kong and Buenos Aires. The firm's specialty is early stage advisory, investments and exit strategies/M&A. Since inception, PALcapital has financed, invested an and sold over 50 companies. Clients have been from over 20 countries including: USA, China, HK, Korea, Australia, Argentina, Chile, Lebanon, UAE, Spain, Italy, France, Germany, England, Ireland, Russia, Japan, Philippines and Thailand.

In 2011, Mr Haft Launched the PALgenesis Fund, (www.PALgenesis.com), which is now in harvest mode having made 8 investments in Internet startups as the initial investor. Co-investors in PALgenesis companies include: Sequoia, US Venture Partners, Stanford University, Google, UPS, Amazon, Box Group, Jerry Yang (Yahoo), Tony Hseih (Zappos), Crosslink Ventures, Las Vegas Tech Fund, Quest VC, and Pantera. Based upon the last rounds of funding and exits in the portfolio companies, PALgenesis is expected to return a 30% IRR over the life of the fund.

Mr. Haft Prior to founding PALcapital, Mr. Haft was the Managing Director of Latin American Equity Capital Markets at INGBarings (U.S.) Securities, Inc. Previously, he was founder and Managing Director of Emerging Markets Investment Banking at Furman Selz, LLC, and Managing Director of Asian Investment Banking in Hong Kong for Bear, Stearns & Co., Inc. Prior to his three years in Hong Kong, Mr. Haft worked for six years as an investment banker at Bear Stearns in New York in the Mergers & Acquisitions and Latin American Corporate Finance Groups.

Mr. Haft has been responsible for the origination and closing of transactions in the U.S., Asia, Europe and Latin America with an aggregate value of over $20 billion and was responsible for the first listing of a Chinese company on the New York Stock Exchange. In 2007, PALcapital represented the leading Spanish language Internet advertising network in connection their acquisition by .FOX, a division of News Corporation and in 2014 PALcapital lead a financing for TARINGA!, the largest global Spanish language social media.

Mr. Haft received an A.B. in economics and Art History from Vassar College and a J.D./MBA from Emory University and is a member of the New York State Bar. Mr. Haft is a founder and board member emeritus of Urban Arts Partnership (www.UrbanArts.org), a not-for-profit that provides arts education to public schools in New York City and the chairman of the USA of www.WeForest.org, a global organization which plants trees to reverse global warming.

Michael Mazier

Michael brings expertise in investment banking and fund management. He is currently the Co-Founder at LendingCalc, an early stage fintech startup that provides productivity tools and analytics to portfolio managers investing in online marketplace loans. Lendingcalc (formerly Marktsync) is currently testing with beta users investing real money in online marketplace loans.

Before founding LendingCalc, he was Chief Quantitative Strategist and Portfolio Manager at Van Eck Global, an investment management firm headquartered in New York and having satellite offices in in Shanghai, China; Frankfurt, Germany; and Sydney, Australia. As of 2016, Van Eck Global managed assets worth over 38 billion USD in in assets.

Michael holds a Bachelor's degree in Electrical Engineering from Syracuse University and Master's degree in Computer Engineering from Villanova University. In addition, he obtained his MBA degree in Finance from Columbia University - Columbia Business School in 1990.

Gilad Woltsovitch

Gilad is a skilled Product Management professional, with over 10 experience in product design and execution, with focusing on bridging the gap between complex systems and intuitive user interfaces. He is currently the co-founder & CEO at Backed Inc, a disruptive US-based online lending platform, enabling borrowers easier access to a fair loan.

Beyond product specification and management, Gilad has a deep technological understanding of mathematical transformations, advanced signal & system theories and parameter extraction techniques, Fourier analysis, machine-learning, algorithmic synthesis and high-level computer programming.

Gilad also co-founded iAlbums, a semantic curation engine for media players in 2010 after teaching and leading research groups in the Royal Academy of The Netherlands, where he obtained his MA in art sciences and later in the institute of Harvestworks in NYC.

He has later served as an entrepreneur in residence at Cyhawk ventures, where he developed consumer-facing products for the ad-tech industry. At that time, he joined the Ethereum project and established the Israeli Ethereum meet-up group, which is involved in research and development of the Ethereum Decentralized Apps eco-system.

Simon Leger

Simon has extensive experience in Crypto; he is a professional high frequency crypto trader and market maker. Previously he was at BNP Paribas, a leading bank in Europe with an international reach. It has a presence in 74 countries, with more than 192,000 employees. He worked in the Forex division of BNP Paribas gaining exposure in various forex-

trading aspects including automatic market making, pricing strategies, quantitative signals for high frequency, auto-hedging of positions and prop trading strategies.

Simon has two Master's degrees, MSc in Financial Mathematics and MSc in Applied Mathematics from New York University and ENSAE in France respectively.

Pavel Kapelnikov

Pavel is a serial entrepreneur and investor, serving on the board of several successful startups. He is an expert in freight forwarding with over a decade of senior management experience in the industry. He is the president of globalforwading.com, a full-service logistics company offering access to a global network with instant online pricing quotes. He is also the Principal at Chelsea Holdings Company, a privately held group consisting of multiple companies.

He also holds in interests in companies in data center, transportation, software development and other industries.

Pavel graduated with a Bachelor's degree in 1998 from Fairleigh Dickinson University.

Lior Zysman

Lior is Lawyer by profession with a wealth of experience in legal aspects of Blockchain projects. He currently works for ZAG-S&W Law Offices representing and advising investors, entrepreneurs, and scientists in various technology fields.

Lior has obtained the Bachelor of Laws (LL.B.) from Tel Aviv University in 2011. He also has a special interest in startups and entrepreneurship; he was the Co-Founder StarTau - Tel Aviv University Entrepreneurship Club in his university time. He is also the volunteer Community Organizer since 2015 for Bitcoin EmBassy (Tel Aviv), an organization to promote Bitcoin adoption and it serves as a physical haven for the Bitcoin community.

Legal Counsels

Goodwin Procter LLP

Goodwin Procter LLP will function as Lampix's IP lawyers. It is a Global 50 law firm consisting of more than 1000 lawyers with offices in Boston, Frankfurt, Hong Kong, London, Los Angeles, New York City, Paris, Silicon Valley, San Francisco, and Washington, D.C. Goodwin focuses on complex transactional work and high-stakes litigation in matters including intellectual property, private equity, real estate capital markets, and technology/life sciences.

Casner & Edwards, LLP

Lampix's corporate lawyers will be Casner & Edwards LLP, a law firm founded in 1974 and headquartered in Boston, Massachusetts. Their practice areas include business & corporate, employment, emerging companies, tax, bankruptcy & restructuring.

THE PROBLEM

Quality computer vision relies heavily on quality datasets for training and testing algorithms. Algorithms themselves are quickly becoming commodity, but this is not the case for data[1].

While there are a few databases of datasets currently in the market, there is no unified market for this purpose. In addition, there is no standardized way of dealing with such data and no proper way of requesting such data from a community or user base, not even in exchange for money.

Further, more interestingly, these datasets are for a specific purpose, the lower the chance that they are actually nonproprietary, and thus they are expensive or unobtainable. It may be easy to find a dataset with 10,000 general-purpose object classes; but it could be difficult to find datasets for a specific requirement of a user/manufacturer.

We came across these problems while working on Lampix, which is itself a platform that commoditizes the AR space and can make good use of such datasets for the most diverse applications, such as in retail, for distinguishing and augmenting products on shelves in stores.

Other AR products can also benefit from such datasets in similar ways. The types of data included are not limited to 2D images but can also include 3D artifacts.

[1] https://www.quora.com/Is-there-any-platform-to-sell-data-sets

THE SOLUTION

The PIX token puts a value in datasets. The value is reflected is the core of many final products, which already include great algorithms. Good datasets enable them and makes them useful. Lampix is great example for a product that can make use of a good datasets for various real-life uses.

We want to create a currency that expresses exactly the value of modern computer vision datasets. Because we have experience with Lampix and we already have a market and traction for it, we are initially focusing the dataset market on indoor objects such as things that sits around our desks or on the shelves in stores.

However, this is just the beginning. The datasets will extend and expand. The market for datasets will grow. Supply and demand will always put a correct price on datasets. Dataset creators will earn tokens by creating datasets, and be incentivized to specialize in and become more efficient at dataset creation.

Dataset users have a single place and market to access this data, vote on its quality and submit requests for new datasets or dataset extensions suiting their needs.

The decentralized blockchain based structure of the database will guarantee that the data will always be public and uncontrolled by a single entity. Once mined, every mined item will stay public forever.

Lampix itself is a very good tool for creating many such types of datasets and comes with the right apps that enable exactly this task.

THE PRODUCT

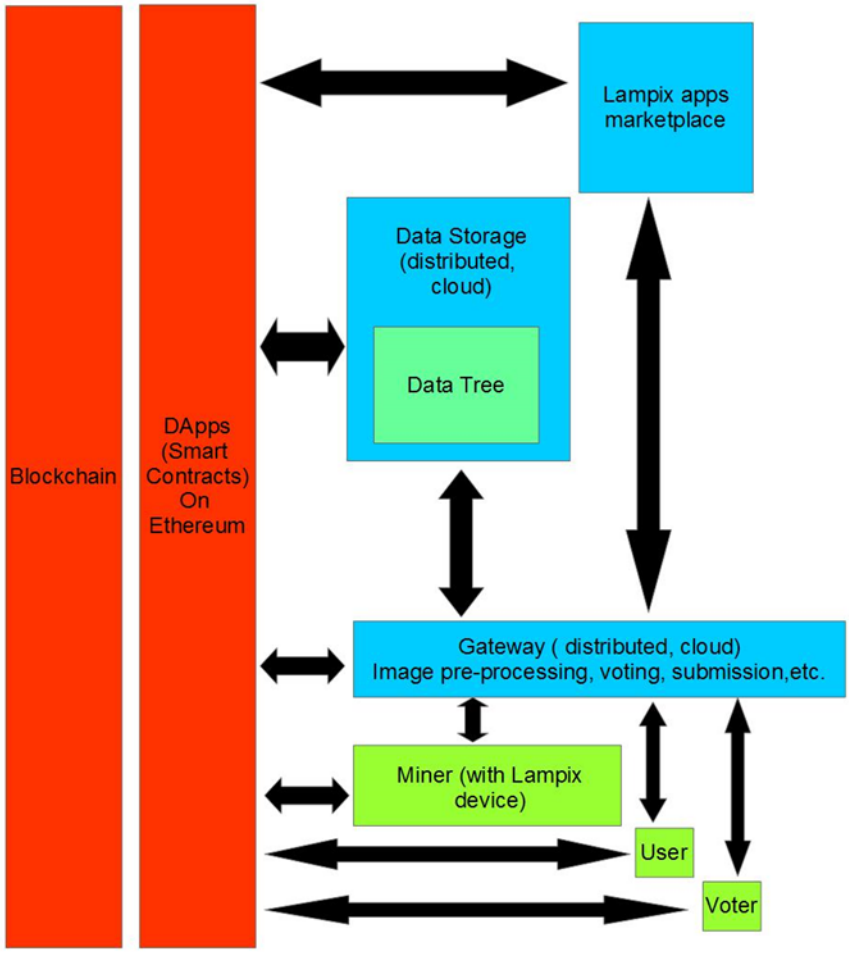
Image Mining and PIX Smart Contracts

We are building a crowd-mined {image, description, segmentation} database of at least one billion sets on the blockchain. We believe this database should be independent of any central control. We believe the right mechanism to encourage mining is to pay miners for their labor. We believe we should also charge users a smaller amount for using the data in the database. Optionally, we will also provide miners with a mining rig (a Lampix device). For all these reasons, we need a token to help tie together this economy; we refer to this token as PIX. There are multiple modules used in the general architecture of this ecosystem as given below:

- The data storage database module
- The {image, description, segmentation} tree module
- The {image, description, segmentation} tree branch creation module
- The gateway, data submission module
- The smart contract for mining module
- The voting mechanism module
- The smart contract for voting module
- The data access/usage module
- The smart contract for data usage module
- The Lampix GAS smart contract module (PIX tokens used to support cloud resources for Lampix devices)
- The Lampix APP submission module
- The Lampix APP download module
- The Lampix APP smart contract
- The token sale smart contract module

It is not the purpose of this white paper to detail every single module. Given below is a simplified diagram with a simplified flow.

Image: Simplified diagram of the general architecture of the ecosystem



High-Level View of the Process

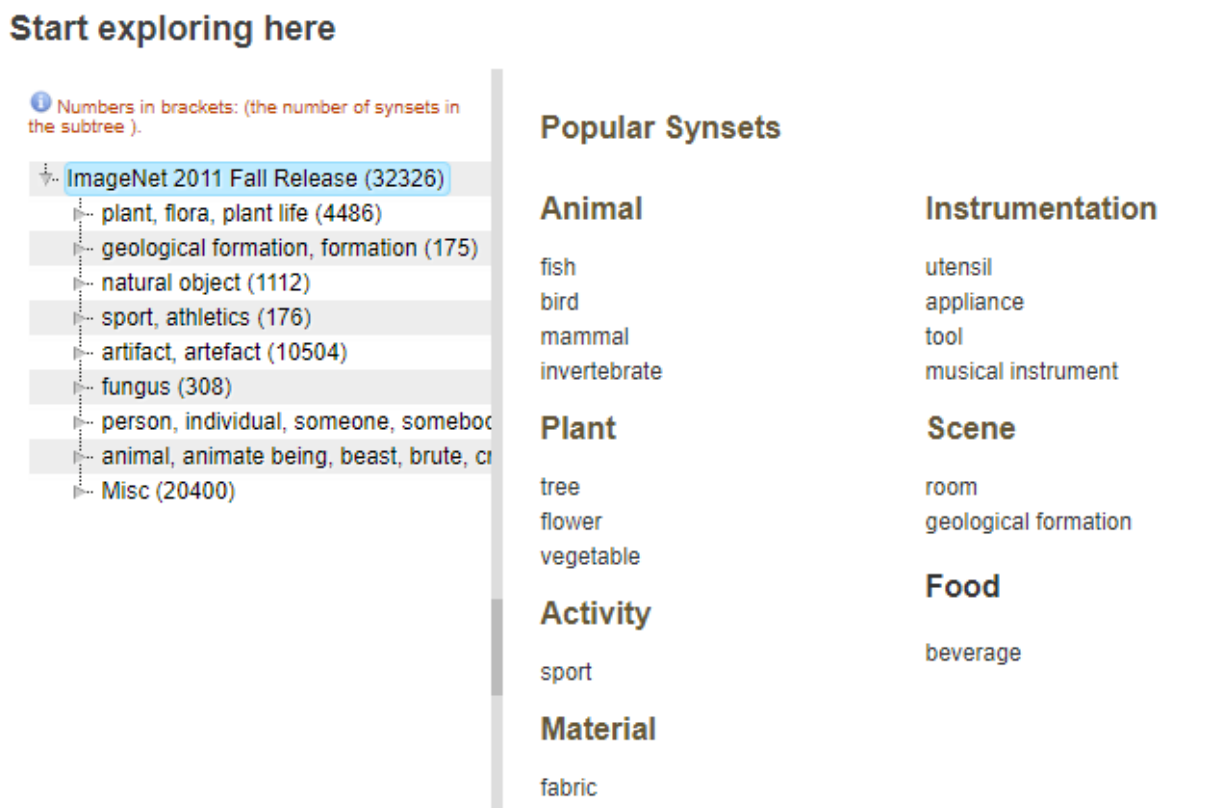
Every miner, voter, and user will be associated with a wallet address.

- **Tree of requirements**

To instruct miners what {image, description, segmentation} sets are useful; a requirement tree will be put in place. Here is an example of such tree from ImageNet[2], a similar database.

[2] http://image-net.org/explore

Image: An example of requirements tree



Source: ImageNet

The Lampix ecosystem makes the best usage of images of objects on a flat surface indoors. The Lampix team will, therefore, populate a starting tree with PIX bounties. Each tree branch, sub-branch and so on will have a particular bounty attached to it which will be the value the miners can earn by mining that entire branch.

Beyond the Lampix needs, anybody else with a PIX balance and a wallet address will be able to create their own branches with a PIX bounty attached to them. The creator will then be able to decide how much they are willing to pay for that set and how much they will charge potential users for the set. In order for the infrastructure to be supported the tree smart contract will, however, charge a small percentage of those fees to pay for the upkeep of the system.

Through the blockchain and smart contract system, users can get data from different branches owned by different owners, while at the same time having a completely transparent process, with each owner knowing for sure they will earn their fair share of PIX for the data they paid for to mine.

This approach can, of course, be enlarged beyond {image, description, segmentation} mining for any usages like sound, other media, or maybe even general human work like the Amazon Mechanical Turk[3] which could be migrated to the blockchain.

- **Image Acquisition**

Any miner will be able to submit sets of {image, description, segmentation}. The images will have to be of sufficient resolution (32 bits, format JPG) and the description will have to be in XML format.

The submission will be done directly to the database pre-processing mechanism.

The submission is done via a Graphical User Interface program pre-loaded and pre-configured on the Lampix device. All users need to have a Lampix device to mine by following directions such as:

1. Enter the wallet address
2. Choose what objects you are mining from the tree using a simple pointer/menu navigation process
3. Press a key to start
4. Place object1 here (Lampix will highlight an area on the table).
5. Press a key when object is in place
6. Now move object to new location (Lampix highlighted it)
7. Press a key again

- **Pre-processing (in gateway)**

All new incoming sets of {image, description, segmentation} will be received by the database watchdog, the input mechanism. The input module will apply basic image processing algos to sift through the submissions:

- Detect duplicate image
- Detect image already in database

[3] https://www.mturk.com/mturk/welcome

- Detect image too similar to existing image in database

The purpose of this sifting will be to remove an obviously wrong submission or to save unnecessary voting costs.

➢ **Voting and set entry in the database**

One will have to verify if the {image, description, segmentations} sets are accurate and correct. Humans are best positioned to make this verification at this time (until the Lampix database is large enough so that computer vision and machine learning will be able to do the voting themselves).

As implemented by Augur REP[4] tokens, voting on a image will receive payment in PIX tokens. A few voting features:

- People will vote to decide if the image content matches the XML description content
- The voting choices will be binary: YES/NO
- The first vote will receive the largest payment
- Later votes will receive smaller payments
- Consensus will be reached when there are X times more votes in one direction than the other
- Once consensus is reached the {image, description, segmentation} set will be committed to the database
- Payments will then be triggered via the smart contracts to the miner and the voters who voted in the direction of the consensus
- Voters who voted against the consensus will not receive payment
- If a wallet address votes consistently against the consensus it will be charged PIX tokens in fact, per the smart contract. This will be in place in order to avoid random voting or abuse

➢ **Payment**

Our financial model is based on the following assumptions:

- The easiest way to mine {image, description, segmentation} sets is by using a Lampix device

[4] http://blog.augur.net/for-reporters-a-guide-to-rep-tokens/

- One should be able to make back the Lampix purchase cost by mining at a reasonable workload for about 2 months
- Voting should be paid less than mining but sufficient for people to be interested to vote

As you can see in our financial model details we have come up with a temporary, order of magnitude, payments amounts in PIX and USD for the mining and voting.

All payments will be done via the blockchain in PIX tokens, in real time once the right conditions are met.

➢ **Image usage**

Upon entry in the database, each set will be associated to a hash which will be written on a blockchain.

Any wallet address with sufficient balance in PIX will be able to request any data from the database and pay directly via a smart contract for accessing it. Upon receipt, the user can verify the data integrity by comparing its data hash vs. the hashes in the blockchain for the data they requested.

➢ **Smart contracts**

All smart contracts, where applicable, will follow the ERC:20 standards. If new standards are approved by the Ethereum community in the future, such standards will be used.

All smart contracts will also be audited by third parties as much as reasonable.

Potential Commercial Applications

The potential applications of PIX token or the value of the datasets can be endless. The PIX ecosystem can provide computer vision datasets for various commercial applications of AR applications and products

Some ideas and use cases of the PIX ecosystem in different industries are explained below. Most of these use cases are already proved practical in real life with our own device, Lampix.

- **Meeting and Collaboration**

We can make meetings and collaborations easier and more efficient with the following features:

Collaboration for remote meetings – We can share a live stream to the paper document you are working on and enable instant visual (projected) feedback on that document from your collaborators. Our Lampix device has already done this.

Image: Lampix live streaming to a paper document

Collaborative data exploration – We can present data in an interactive pivot table, allowing the rows, columns, and groupings to be manipulated by moving physical objects.

Use the table as a whiteboard – We can enable annotations on digital documents, which are projected, as well as scanning of physical documents, such as post-it notes.

Redlining – We can mix digital content (such as diagrams or diagram elements) with physical content (such as markup or element connections) on a whiteboard. Transfer the markup back to the original documents.

Voting – We can show a voting interface directly on the table, in any meeting room, allowing meeting participants to easily vote and have the results available instantly.

- **Gaming Industry**

We can take regular screen based gaming into a new dimension by projecting the games on a larger surface and mixing them with reality. For instance, we can:

- Play a game on any surface with friends
- Increase engagement and entertainment
- Include everyday physical objects in the games
- Move from screen focused games to environmental aware games

Image: Playing Chess with Lampix device

- **Office**

In addition to meeting and collaboration, we can use datasets from PIX ecosystem to improve the efficiency of office day-to-day functions with different AR products and applications. Given below are some of the usage examples:

Scanning - We can easily scan the document with a simple tap and directly send to your computer or online storage.

Transform office desks - We can transform our office desk surface into a pin board or different visualization medium. We can freeze a document's image on the table and bind digital content to the documents. We can then recall physical documents based on the digital labels you have given them.

Business Cards - We can recognize business cards, project the LinkedIn profile of the business card owners and send, in one-step, follow-up emails. For instance, we can send "nice to meet" by pressing one button and ask for an appointment.

Computer/mobile notifications – We can show the notification from the computer or mobile (mail, messages, etc.) which we can dismiss or see more information.

Image: Lampix working with a business card

- **Retail Industry**

Retail sector can make use datasets from PIX ecosystem in brick and mortar stores to create AR products and applications to increase the sales potential. Some of the potential use cases are given below:

A new experience for customers - We can easily mix real products with digitally projected content to tell a compelling story about the products.

A familiar environment yet surprising - Nearly any existing store surface can be transformed into an interactive surface.

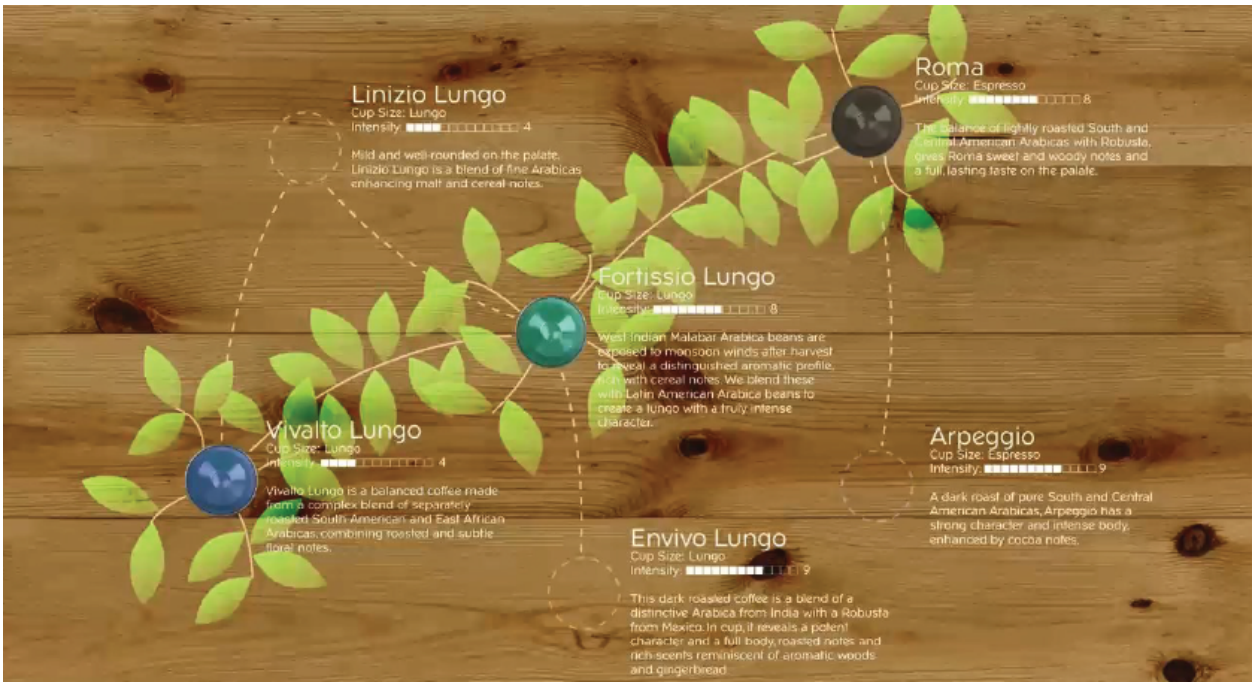
Product guidance – We can explain how, for example, a coffee machine is used step by step, by projecting on the machine itself to highlight buttons and other control elements.

Product information - Retail products placed on a surface would result in display of product information, which can also be interactive, for example, it can contain buttons leading to further categories of information.

Digitize and share - Latte art, after a cup of coffee is recognized on the table. Let users connect to Lampix by scanning a personalized QR code, after that they can share content from Lampix (such as a nice Latte art) on one of their social media channels.

Product recommendation wizard – We can guide the user through a set of multiple-choice questions (like a survey), and depending on what was chosen, show recommendations by highlighting real products (overlaid projection).

Image: Product recommendation graph created by Lampix



- **Restaurant Industry**

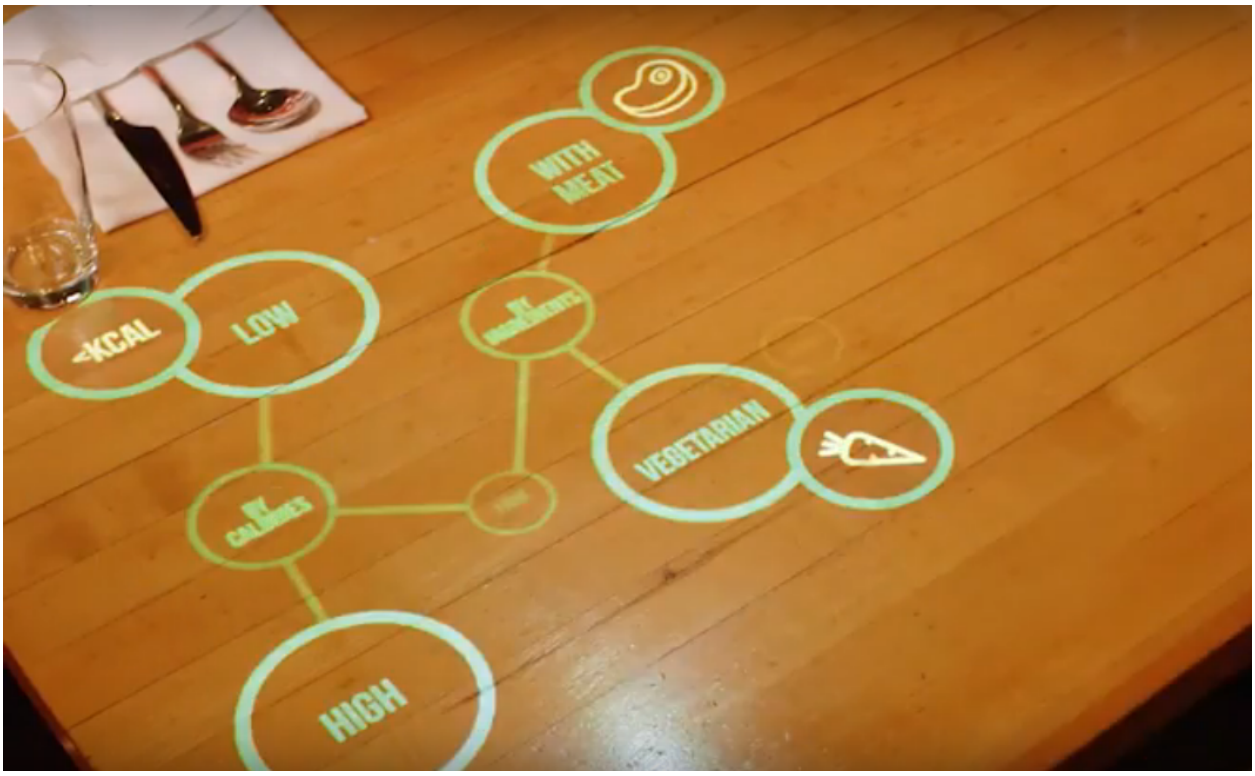
PIX ecosystem can provide the restaurant industry with necessary datasets to come up with various AR products and applications, which can improve the efficiency and user experience. Given below are some of the example uses.

Menu display on table – we can display the whole menu on the table, which makes the ordering process much faster and easier. Customers will not need to wait for a waiter to bring a menu.

Engage with customers – we can improve the engagement with the customers. For instance, we could play a simple game until the order arrives.

Faster billing – We can display the bill on the table and payment can be made online, all on the table.

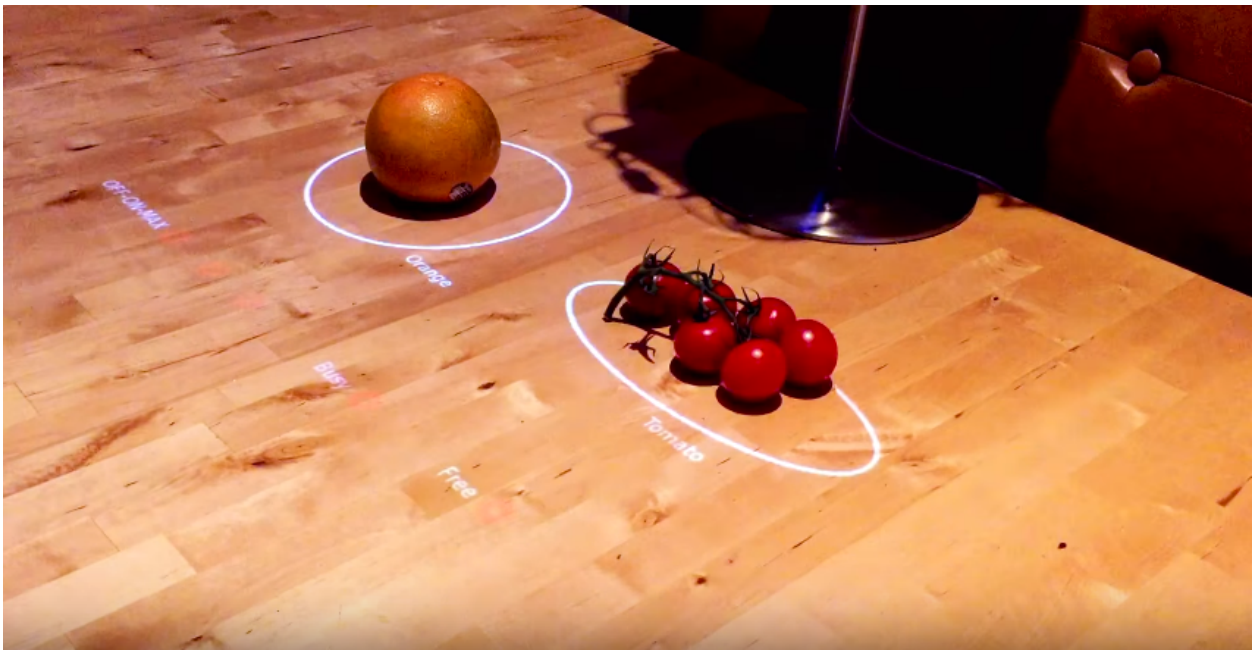
Image: Menu displayed on a restaurant table by Lampix



- **Homes**

PIX ecosystem can provide datasets for AR products and applications, which can make smarter homes. The potential uses are only limited by imagination. We can turn any surface into a smart surface For instance, imagine having your recipe on the table you cook, without worrying about putting your dirty hands on a keyboard or mouse or on a paper. Further, imagine placing some kind of produce like a tomato on the kitchen table and then projecting an assortment of cuisine styles and recipes around it inspiring you to find new ideas.

Image: Recognizing orange and tomato placed on the table by Lampix



Lampix as a Platform

Lampix will be the first device to make use of the PIX ecosystem to create and improve AR applications for various uses, some of which have already been implemented by Lampix. Lampix can be the best tool to build up the database of computer vision datasets on the blockchain as a producer or a consumer due to following reasons:

- Lampix uses much simpler hardware than existing technologies while still enabling the same applications and much more. It is based on recent advances in computer vision and machine learning. Lampix is using a visible spectrum camera and the latest advances in computer vision. This allows us to detect human fingers and also objects and movements with very simple hardware. By using a projector, we also create augmented reality without glasses.

- Lampix uses an Android-based software platform. It comes with APIs and you can take any HTML content and make it responsive to objects and finger movement/gestures. You can also use a low-level Android API to create much more powerful applications. It comes with several ready-made apps intended for office functions. We are also releasing

the source code of these apps so anyone who wants to develop an app can get started faster.

- Lampix lowers the upfront effort to develop augmented reality applications by offering a comprehensive framework covering every aspect of computer vision and AI to interface design. In its simplest form, the Lampix API allows taking any HTML 5 page and tagging elements, those elements will then react to the input from the physical world such as movement, physical objects, or fingers. The framework allows users to train Lampix to recognize different object classes within minutes. Users can, therefore, make HTML 5 content that is projected on a flat surface and which is controlled via physical objects and fingers. For even more freedom, a low-level Android API is also available.

- Lampix empowers any HTML5 page to react to objects, fingers, and movement by means of a few simple attributes and a JavaScript library. We are currently developing a training app that streamlines the learning of new object classes. This will enable all developers to make AR apps within hours. Our CTO made a proof of concept of an AR tower defense game in 8 hours. We are also working on an Android SDK with specific Lampix extensions to enable even more powerful apps. Lampix will have a dedicated "App Store" where app developers can publish their apps.

Lampix Hardware

We designed Lampix with form and function as top priorities. LED lights lined the top for indirect soft lighting. Under the shade, you will find color LEDs that fill a room with a glow as well as a separate desk light. The core of Lampix is a Raspberry Pi 3 board, which can control two cameras, one video, one high-resolution projector and the lighting fixtures.

Technical specifications of the Lampix Device:

- Diagonal view: about 1m
- Camera resolution: 8mp
- OCR plausible on 18px fonts
- Current option: lower Lampix => smaller area, bigger resolution

Image: Lampix Design

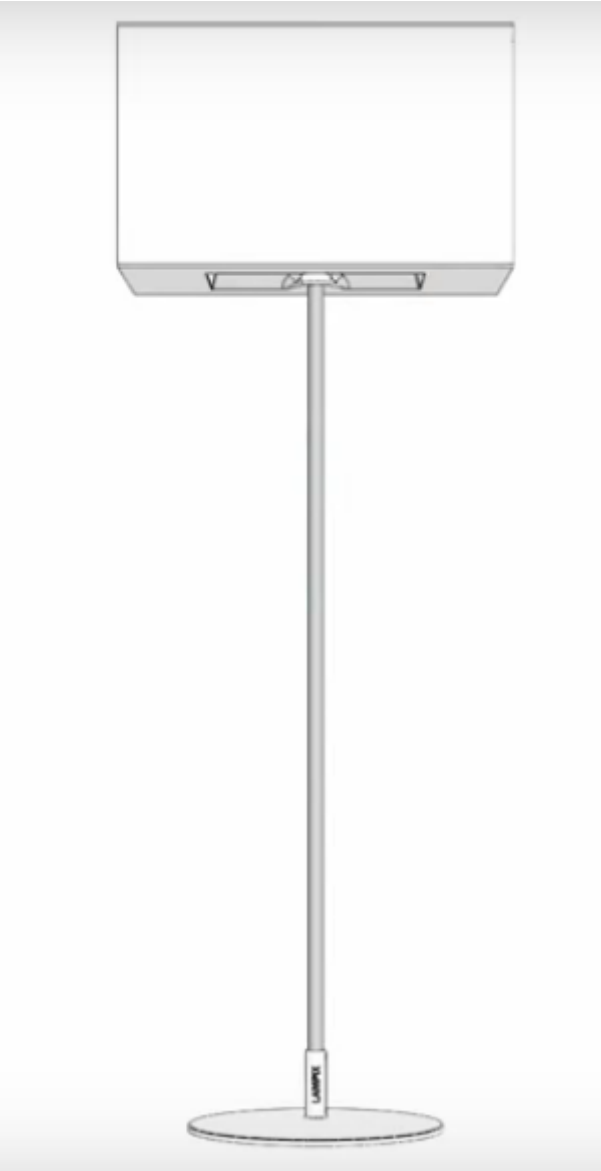


Image: Inside hardware

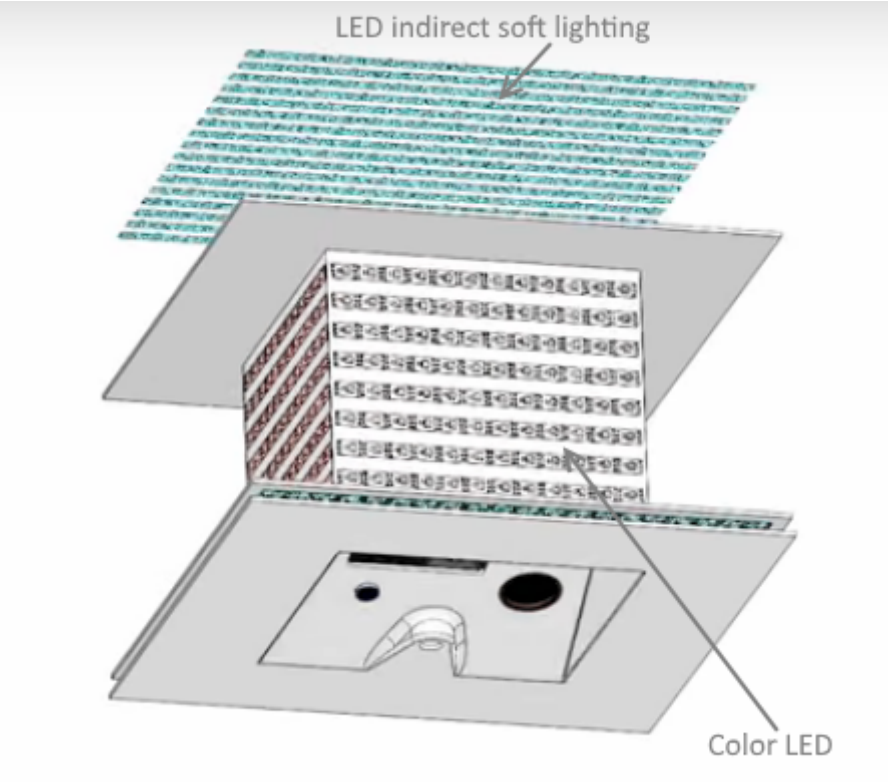
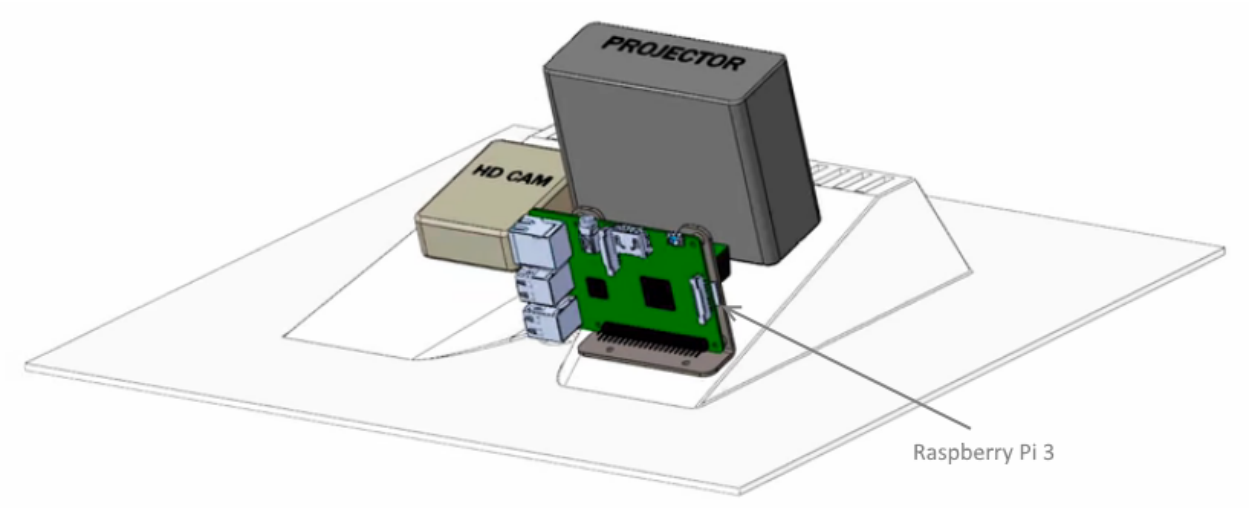


Image: projector, camera, and the motherboard inside color LED cover



The Market

Augmented Reality Market

According to the market research by Zion Research[5], global demand for augmented reality market was valued at around USD 3.33 Billion in 2015 and is expected to reach approximately USD 133.78 Billion in 2021, growing at a CAGR of slightly above 85.2% between 2016 and 2021.

The research highlights that augmented reality (AR) technology is one of the emerging technologies in the field of displays that would make a mark in the near future. Augmented reality technology is used in various fields such as aerospace & defense, commercial, retail and e-commerce. The gaming sector would be more engaging & interactive with the help of augmented reality technology. According to Goldman Sachs research[6], other sectors impacted or disrupted are live events, real estate, education, healthcare, and engineering.

It is further revealed that emerging trends such as escalating convergence between wearable devices, AR, and GPS are anticipated to drive demand of augmented reality market. High penetration of smartphones and tablet is the major factor in prompting this market adoption. User Interface (UI) limitations may curtail the growth of this market. It also shows technical inefficiency in determining various physical obstructions due to lack of information in view management[7].

Enterprise Collaboration Market

The enterprise collaboration market size[8] is estimated to grow from USD 26.68 billion in 2016 to USD 49.51 billion by 2021, at an estimated Compound Annual Growth Rate (CAGR) of 13.2%.

[5] https://www.zionmarketresearch.com/sample/augmented-reality-market
[6] http://www.goldmansachs.com/our-thinking/pages/technology-driving-innovation-folder/virtual-and-augmented-reality/report.pdf
[7] https://globenewswire.com/news-release/2016/11/24/892607/0/en/Global-Augmented-Reality-AR-Market-will-reach-USD-133-78-Billion-by-2021-Zion-Market-Research.html
[8] http://www.marketsandmarkets.com/Market-Reports/enterprise-collaboration-market-130299553.html

Interactive Display Market

The interactive display market was valued at USD 9.90 Billion in 2015 and is estimated to reach USD 26.91 Billion by 2022, at a CAGR of 15.51% during the forecast period[9].

The Potential Market for PIX

Since PIX ecosystem can radically improve the efficiency of computer vision with its database of computer vision datasets, all the AR markets discussed earlier will create a huge demand for the datasets and in turn for the PIX token.

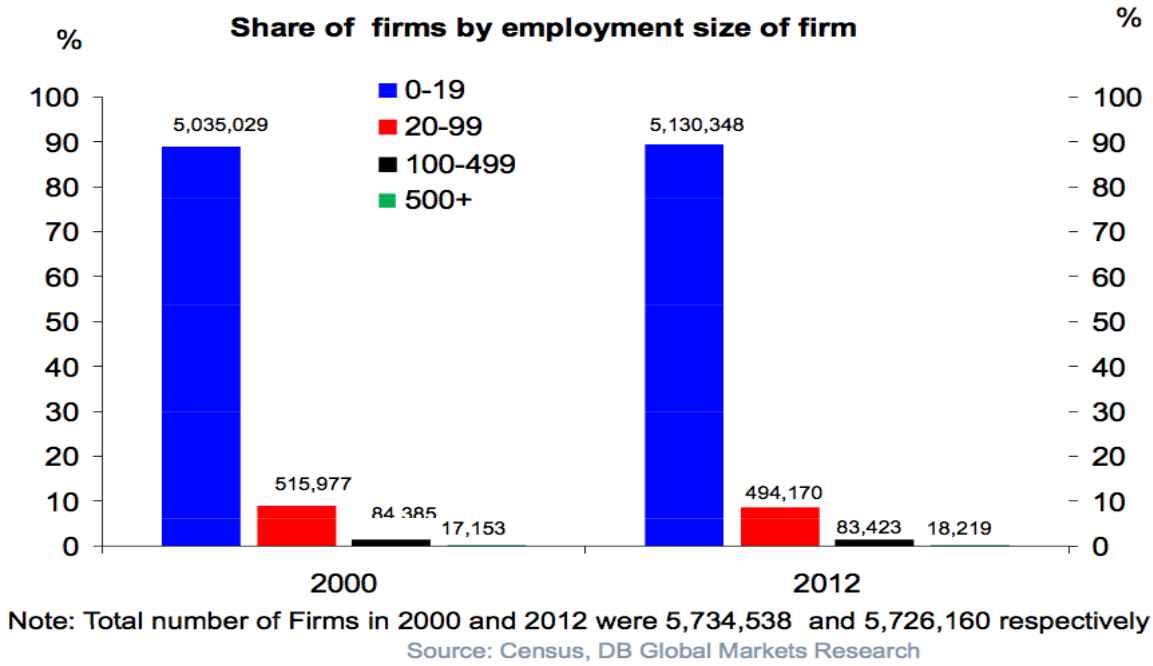
Total Available Market for Lampix as a Device

Geographically, Lampix will target the US market at first. Both corporate and high-end household markets will be within the total available market of Lampix.

As per available statistics (2012), there are 5.7 million companies in the USA. Interestingly, 90% of these companies have less than 20 employees.

On the other hand, there were 124.6 million households in the USA in 2016 out of which 32.9 million households (i.e. 26.4%) had an annual income of over $100,000.

Graph: US companies by employment

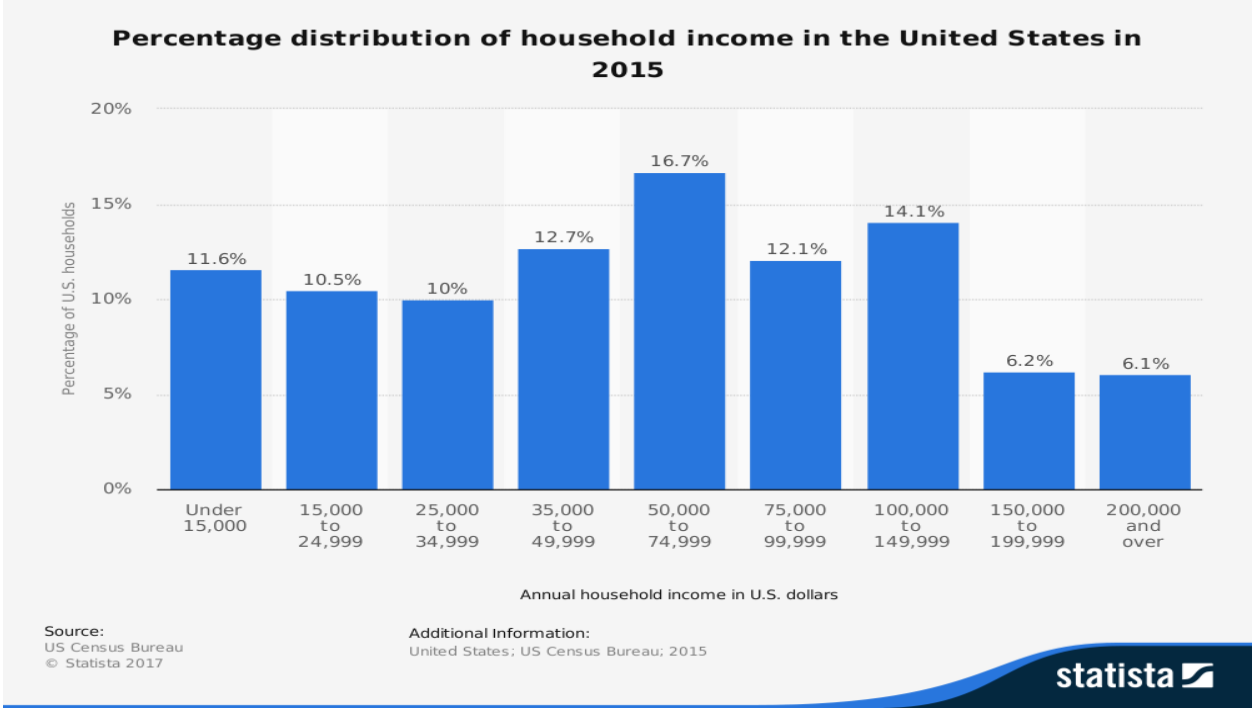


Note: Total number of Firms in 2000 and 2012 were 5,734,538 and 5,726,160 respectively

Source: Census, DB Global Markets Research

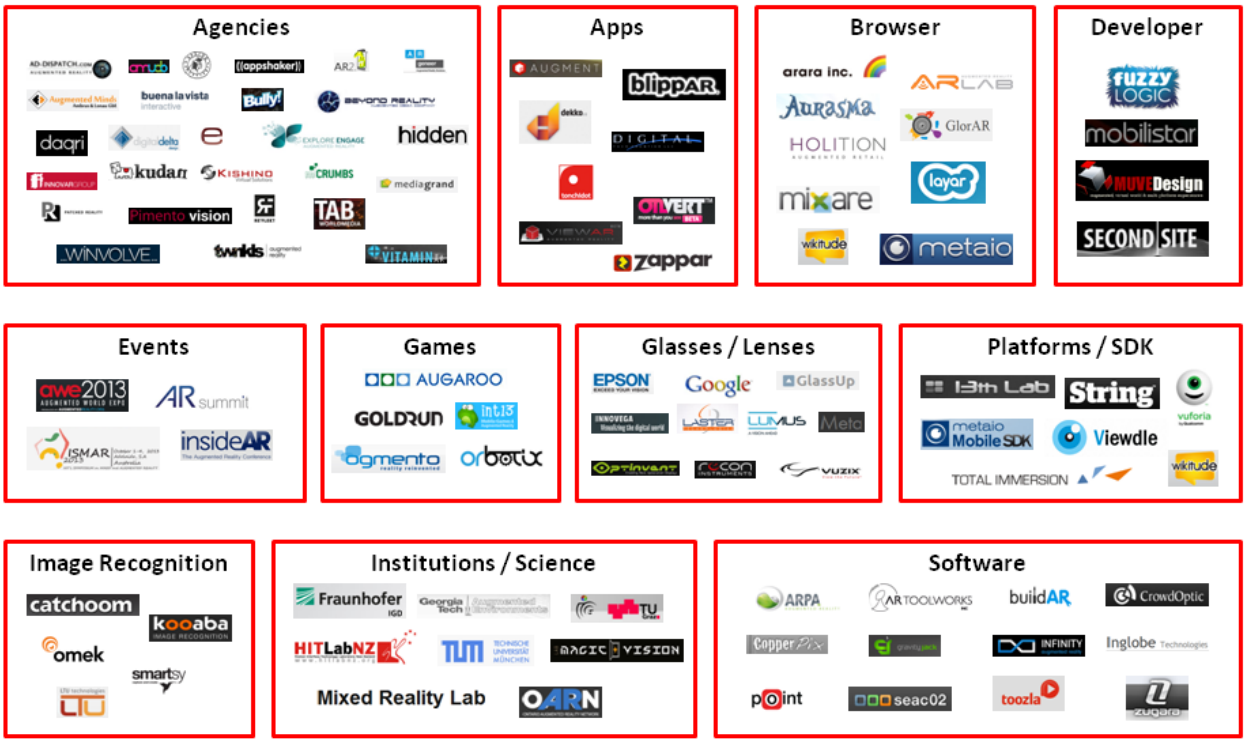
[9] http://www.marketsandmarkets.com/Market-Reports/interactive-display-market-36223528.html

Graph: US household income



The AR Landscape

The AR landscape can include applications, tools, devices, events, agencies, etc. Some of the notable participants in the market are given below:



Competitive Landscape

Given below are some marketplaces that collect public datasets and private datasets for organizations. People can buy the datasets or download them free. At some marketplaces, organizations can also sell their own datasets[10].

DataMarket (datamarket.com) is a data supermarket offering more than 45.000 datasets from around the world, delivered by among others 42 governments. Datamarket's objective is to find all available (public) datasets and make them accessible and understandable.

DataStreamX (datastreamx.com) is the global marketplace for commercial data. Founded in 2014, their mission is to accelerate data access worldwide by bringing together buyers and vendors of data onto one

[10] https://datafloq.com/public-data/

simple-to-use platform. DataStreamX helps transform our clients' businesses by delivering actionable data to buyers and creating new revenue opportunities for vendors. As the global marketplace for commercial data, they enable the data economy

QunB (qunb.com) is developing a data marketplace. Companies are stimulated to upload their own data to QunB and to combine it with other datasets. These datasets can be sold or can be given away free.

Knoema (Knoema.com) is a knowledge platform that provides access to over 100 million time series. All available data is interactive and can be exported if needed. In addition they provide visualization tools (with over 1000 different visualizations) to analyze the public data. Visualizations can be made public or kept private.

LexisNexis (lexisnexis.com) is a paid subscription platform offering libraries of statutes, case judgments, and opinions for jurisdictions. Customers have access to billions of searchable documents and records from more than 45,000 legal, news and business sources.

Google Public Data (google.com/publicdata/directory), visitors can delve into 104 different data sets and download them for their own usage. Visitors can upload their own datasets to visualize it and explore it. Current available datasets are among others from the World Economic Forum, Eurostat, or the IMF.

Amazon Web Services (aws.amazon.com/datasets/) has 54 datasets made available to the public. Datasets such as the 1000 Genome Project or the Common Crawl Corpus Project covering data of over 5 billion web pages are available to users.

Enigma.io is a big data startup that offers access to public data sources. The New York based company offers over 100.000 databases that can easily be searched through or exported. Users can download everything from import bills of lading, to aircraft ownership, lobbying activity, real estate assessments, spectrum licenses, financial filings, liens, etc.

Quandl (Quandl.com) is a public data set startup currently in beta and offering over five million financial, economic, and social data sets from all over the world free. Visitors can embed graphs on their own website or download the data set via Python, Stata, Excel or R.

Figshare (Figshare.com) is a platform especially for researchers, where researchers can make their outputs available to everyone in order to be used by anyone. Figures, datasets, media, papers, posters, presentations, and file sets can be made public to everyone. All data is automatically published in a citable, searchable, and sharable manner.

Datahub.io is a community-run catalogue of useful sets of data on the Internet. Users can collect links to data found on the web or store data on the platform itself. Users can also search the data collected by other users. The platform runs on the open-source software CKAN. Most of the data indexed is free to use or re-use.

Open Science Data Cloud (opensciencedatacloud.org) is a platform providing petabyte-scale cloud resources that enables users to easily analyze, manage, and share data. The OSDC currently hosts about 450 TB of data and they plan to increase this to the petabyte level.

OpenData (opendata.socrata.com) is a platform with a large collection of open data sets by Socrata. Socrata provides social data discovery services for opening government data. They have collected over 200.000 datasets from around the world. The data sets are divided in five different categories: Business, Education, Fun, Government, and Personal.

Freebase (freebase.com) is a community-curated database of well-known people, places, and things. The website offers almost 2 billion facts divided over 40 million topics and 76 domains. Every fact and entity is available as an RDF Dump, which enables users to analyze the entire database on your own computer.

Thinknum (thinknum.com) is working on indexing all financial data and exposing it through a simple API. They have over 10 million data-series all of which can be downloaded free. They use the data to build applications that help strategists analyze financial markets. They currently support two applications: ThinkNum Plotter and Thinknum Cash low Engine. Thinknum Plotter allows users to manipulate time-series data using mathematical expressions. Users can analyze data without having to write code. Thinknum cash flow engine allows users to view discounted cash flow models online.

xDayta (xdayta .com) is a marketplace to buy and sell data. xDayta is an open platform allowing anyone to sell any type of data to any buyer. It's free to list data on xDayta for sale. Anyone can register and sell data on xDayta. Anyone looking for data to buy can use xDayta. The xDayta exchange facilitates over-the-counter data trades, brokers transactions, indexes data pricing and regulates trading.

Red Lion Data (redliondata.com) is a Canadian marketplace that offers location datasets for retail and restaurants in USA and Canada. Data sets are sold between $15 – $55 as well as annual subscriptions are available. The data sets are especially relevant for mobile apps developers, Real Estate Professionals, Online portals, Web Directories, and Marketing Professionals.

The ArcGIS Open Data (hub.arcgis.com/pages/open-data) allows people to search for all the authoritative open geospatial data that has been shared by the users of ArcGIS Online, Esri cloud-based mapping platform. Since ArcGIS Open Data was launched, more than 1,500 authoritative organizations (governments at all levels, commercial organizations, nonprofits, etc.) have shared more than 25,000 high quality datasets as open data. People can search this data by topic or location and then download it for their own use and analysis.

Big Data Exchange (bigdataexchange.com) is a real-time data exchange enabling data buyers and sellers to connect and exchange user profile data sets in real-time. Data Sellers can use our APIs to monetize their

data and Data Buyers can access user interest data in real-time using a set of API tools geared towards helping companies learn more about their users in order to increase ROI.

Competition for Lampix as a Device

Lampix as a device offers a unique product and solution. However, there are some products already in the market, which make use of augmented reality and they may look similar to Lampix in some respects. Most notable devices include the following:

SoftKinetic[11] is one of only a handful of companies to successfully develop time-of-flight technology for consumer electronics and industrial applications. They give the tools to build imaginative, highly engaging applications and products that are completely natural and intuitive for people to use.

Sony AR-enabled Projector - The projector turns any flat surface into a 23-inch high-definition touchscreen. It is able to detect movement corresponding to clicks and swipes, using a combination of infrared light and its built-in camera.

PQ Labs[12] have multiple products in the multi-touch technology covering: custom walls, tables, components, computers in different shapes and functions.

Microsoft LightSpace[13] combines elements of surface computing and augmented reality research to create a highly interactive space where any surface, and even the space between surfaces, is fully interactive. The concept transforms the ideas of surface computing into the new realm of spatial computing.

LumoPlay[14] allows to easily create and manage a wide variety of interactive displays and digital signage for advertising, education, and events.

HP Sprout[15] is a fully integrated desktop 3D scanning solution with 3D object capture, editing, and multiple streamlined 3D print options. Anyone can grab something from the real world, manipulate it in the digital world, and bring it to life in physical space.

[11] http://www.softkinetic.com
[12] http://multitouch.com
[13] https://www.microsoft.com/en-us/research/project/lightspace/
[14] http://www.lumoplay.com
[15] http://www8.hp.com/us/en/sprout/home.html

Beam Labs[16] can turn any flat surface into a big screen. It is a powerful projector equipped with a smart computer, all inside a beautifully designed casing.

[16] http://beamlabsinc.com

TOKEN MECHANISM

Crowdsale Token Launch (CTL)/ICO

Many people refer to a crowdsale token launch (CTL) as an ICO, Initial Coin Offering. A crowdsale token launch is a way for companies to raise capital by issuing their own cryptocurrency, which is usually used on a company's platform.

As you can read in Fortune[17]: "Renowned venture capitalists like Chris Dixon of Andreessen Horowitz and Fred Wilson of Union Square Ventures now tout ICOs as a new form of corporate financing."

"In the second quarter [of 2017], ICO issuance was greater than venture capital, with $210 million [invested in ICOs] versus $180 million [invested into startups by VCs]. We do expect that transition to continue; it's why we're doing what we're doing." From TechCrunch[18].

Initial Coin Offerings can be considered as an alternative form of fundraising that has emerged outside of the traditional financial system. This model has helped a lot of successful projects and companies get the funding required to start their business. However, ICOs have nothing to do at all with an Initial Public Offering (IPO) in which shares are being sold to the public.

How CTL Tokens are traded

Once the CTL is completed and the project launched, the ICO tokens can get listed on cryptocurrency exchanges to trade against other cryptocurrencies. The largest exchange by volume today is Poloniex[19]. The price usually reflects the overall cryptocurrency market sentiment, project-specific news, and the addition of new features.

The Lampix Crowd Token Launch (CTL)

Lampix will crowdsale a token called "PIX". We are doing a crowdsale token launch (CTL) for PIX tokens on August 9th 2017. This will probably be the first "image mining, augmented reality" crowdsale token launch.

[17] http://fortune.com/2017/06/26/ico-initial-coin-offering-investing/
[18] https://techcrunch.com/2017/06/28/while-investment-firms-ponder-icos-this-team-is-barreling-ahead-with-a-100-million-ico-fund/
[19] https://poloniex.com/

Each PIX token will be used as a form of payment to image data miners, voters, or to purchase a Lampix and cloud computing.

The CTL is a vital component to bring the Lampix and database to fruition, enabling us to build a Lampix ecosystem while also financing users who contribute to the database. The database will play a key role in developing augmented reality applications across many devices.

PIX Token radically improves the efficiency of computer vision by creating a new database of computer vision and machine learning data that can be used between software developers, system engineers, and users. It all happens on the Ethereum blockchain.

The Ethereum Blockchain

Ethereum[20] is an open-source, public, blockchain-based distributed computing platform featuring smart contract (scripting) functionality, which facilitates online contractual agreements. It provides a decentralized Turing-complete virtual machine, the Ethereum Virtual Machine (EVM), which can execute scripts using an international network of public nodes.

The tokens can be earned by providing data or can be used to obtain a variety of data services from the Lampix computer vision and machine learning database. The utility of the token is based on distributed decentralized community-vetted user submitted labeled data, which simply means a person's images with labels.

Computer vision and machine learning

Lampix uses much simpler hardware than existing technologies while still enabling the same applications and much more. It is based on recent advances in computer vision and machine learning. The Lampix platform through simple graphic interfaces takes care of the entire process from training and object recognition all the way to content creation.

Where do we need help?

We are building the first blockchain based computer vision and machine learning database for training and usage for objects on indoor flat surfaces.

[20] https://www.ethereum.org/

Why is this important?

Computer vision and machine learning are completely dependent on the availability of data which is curated and described. We are therefore building the largest database of computer vision and machine learning data composed of images with description.

PIX Token Usage

Spend PIX / Purchases

- Data from the database
- A Lampix device
- Buy Lampix Apps
- Cloud computing service (Lampix GAS)

Earn PIX / Payments (to)

- Image miners
- Voters
- Lampix App Developers

HUMAN RESOURCE REQUIREMENT

Lampix will require the following people in the implementation of the project. Vacancies will be published online and potential candidates will be shortlisted and selected after an interview process.

Table: Staff requirement

Staff Required	No. of Staff	Current Status
Management and Operations		
CEO	1	Already filled
CTO	1	Already filled
COO	1	To be recruited
CFO	1	To be recruited
Accountants	4	To be recruited
IT security	2	To be recruited
HR	2	To be recruited
Office admin	1	To be recruited
In- house counsel	2	To be recruited
Hardware-side		
Head Hardware Engineer	1	To be recruited
Electrical	2	01 filled
Mechanical	2	01 filled
Manufacturing	2	To be recruited
Quality	2	To be recruited
Supply Chain	2	To be recruited
Packaging	2	To be recruited
Software-side		
Head Software Engineer	1	To be recruited
Database	2	To be recruited
Blockchain	2	To be recruited
Computer vision	4	01 filled
Core platform	12	03 filled
UI	2	To be recruited
UX	2	To be recruited
Product design	2	To be recruited
Marketing		
Senior	2	To be recruited
Junior	2	01 filled
Total	**59**	

FINANCIALS

The Offering

We are creating 1,100,000,000 PIX tokens. We will sell 50% of the tokens in the token launch over 3 days. We need to raise around $60 million to make any surface a smart surface in the next 4 to 5 years. Please see our financial model for full details on the tokens.

- Day 1 we will sell $20 million worth of tokens with a 15% bonus
- Day 2 we will sell $20 million worth of tokens with a 10% bonus
- Day 3 to 10 we will sell $20 million worth of token with a 5% bonus

We will place 30% of the tokens in reserve and we are using 20% of the token for the team.

Use of Funds

The funds collected through the CTL will be used to cover the expenses of the project until the project starts making profits and sufficient cash flows to function on its own. Lampix is expected to make profits by 2021.

The key expenses to be met with the funds collected are given below:

- The cost of the Lampix database
- Staff salaries
- Sales and marketing expenses
- Hardware manufacturing costs
- App development costs

Chart: Use of funds - composition

Projected Sales

Table: Performa annual revenue for 2017-2022 period (USD)

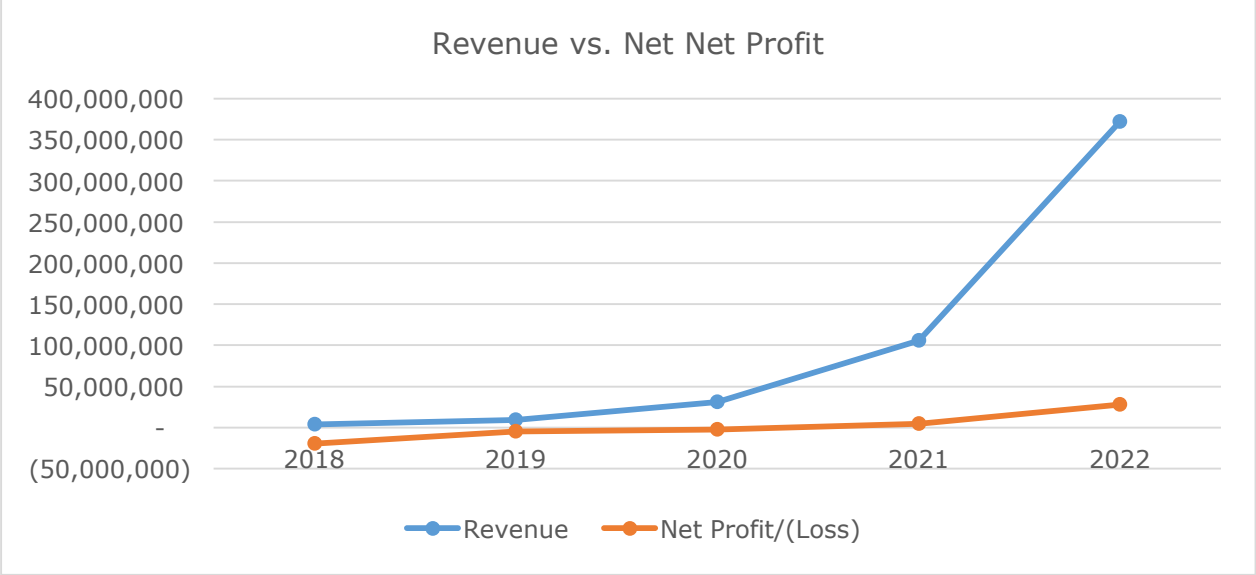
Revenue Type	2017	2018	2019	2020	2021	2022
Retail	-	734,947	2,520,007	9,030,987	32,084,455	113,710,010
Small business	-	1,888,769	5,734,979	20,373,760	72,205,382	255,725,925
Strategic	148,500	670,500	819,000	1,035,000	1,251,000	1,467,000
Data sales	-	78,000	222,000	366,000	510,000	654,000
Total	**148,500**	**3,372,216**	**9,295,985**	**30,805,746**	**106,050,836**	**371,556,935**

Projected Profitability

Table: Performa Profit and Loss Accounts for the 2017-2022 period (USD)

	2017	2018	2019	2020	2021	2022
Lampix devices sold (KPI)	62	1,956	5,706	19,930	70,292	248,608
Total revenue	**60,180,400**	**3,372,216**	**9,295,985**	**30,805,746**	**106,050,836**	**371,556,935**
Of which						
Token Sale	60,000,000					
Retail	-	734,947	2,520,007	9,030,987	32,084,455	113,710,010
Small business	-	1,888,769	5,734,979	20,373,760	72,205,382	255,725,925
Large business	148,500	670,500	819,000	1,035,000	1,251,000	1,467,000
Expenses						
Total expenses	**2,388,100**	**22,972,296**	**14,273,356**	**33,043,005**	**98,074,832**	**325,012,140**
Of Which						
Marketing	8,000	427,686	1,342,261	4,212,590	13,220,911	41,492,881
Database		13,809,975				
Manufacturing	25,200	782,571	2,282,523	7,971,983	28,116,691	99,443,183
People	1,366,000	5,580,064	8,249,573	18,321,432	53,718,230	179,343,076
Services & Other	988,900	2,372,000	2,399,000	2,537,000	3,019,000	4,733,000
EBITDA	57,792,300	(19,600,080)	(4,977,371)	(2,237,259)	7,976,004	46,544,795
Taxes	22,885,751	-	-	-	3,158,498	18,431,739
Net Profit and Loss after Tax	**34,906,549**	**(19,600,080)**	**(4,977,371)**	**(2,237,259)**	**4,817,506**	**28,113,056**

Graph: Revenue vs. net profit (2017-2022)



The Milestones Plan

Table: Key milestones in the Lampix project implementation

#	Timeframe	Milestone
1	2017 August	Crowdsale of PIX Tokens
2	2017 September	Recruitment of required staff
3	2018 January	The launch of SmartDesk for the Retail and Small Business sectors
4	2018 December	Completion of Lampix Database with one billion data sets
5	2019 December	Reaching a sales volume of 5000 Lampix devices

FREQUENTLY ASKED QUESTIONS

Crowdsale & Token

Why are you doing a crowdsale token launch (CTL)?

We need help to finance the beginning of the mining process for a large enough {image, description, segmentation} dataset for all augmented reality projects including Lampix.

Having a Lampix device will be the easiest way to do the mining but we also need help financing it's manufacturing at scale.

We hope people will use Lampix not only to mine but also to enjoy it with applications and to develop Lampix apps as well. This will also increase the Lampix user-base which will, therefore, encourage developers to build more apps for Lampix and its users.

Through this mechanism, we enable and accelerate the adoption of augmented reality and smart surface for the entire human population.

Why Crowdsourcing and blockchain?

Existing databases are controlled by the company who built them. Google, for example, has made such a database[21]. However, there are two problems with this approach: Google controls this database and can at any moment forbid their competitors from using it, remove access to it, etc. Secondary, this database includes only the data Google thinks is needed.

We want a world where no single company and not Lampix either, will control who has access to the data, and what data should go in the database. There is no centralized control. This is why we are working on the blockchain. This database will be available to any miners or users to who earn or pay PIX tokens.

What else can the blockchain help with?

We also plan to include on the blockchain a hash of each image once it is approved and entered into the database. This will address 2 concerns:

1. We want users to know for certain the image has not been tampered with

2. We want users to know that they used the full data set and no actual image has been removed or added.

This mechanism increases the security of the data in the database.

Which network will the blockchain portion of the application support?

On an abstract level, these networks are giant state machines, on which all smart contracts run "locally." Therefore, it is more comparable to an OS than a network per se. That is why

[21] https://research.google.com/youtube8m/index.html

we think products will develop to support multiple chains, just as they support iOS, Android, Windows, Linux, etc.

We will for sure support Ethereum to start but we believe we will then support other networks as well.

Why do you submit images?

You will receive PIX tokens in return for submitting images, approximately on average $0.0079 per {image, description, segmentation} set that passes the voting standards and is added to the database.

When does the crowdsale token launch (CTL) start?

The CTL will begin on August 9th 2017.

What will be the address and the block for the crowdsale token launch?

The address and the exact block will be shared a few days before the CTL.

How do you structure your token launch (CTL)?

After reading Vitalik's paper[22] on initial token pricing we have decided on a structure that is new and we hope will be fairer and will allow more people to participate:

We are creating 1,100,000,000 PIX tokens. We will sell 50% of the tokens in the token launch over 3 days.

Day 1 we will sell $20mil worth of tokens with a 15% bonus
Day 2 we will sell $20mil worth of tokens with a 10% bonus
Day 3 to 10 we will sell $20mil worth of token with a 5% bonus
We will put 30% of the token in reserve and we are using 20% of the token for the team, partners.

Please see our financial model for full details on the tokens. We need to raise roughly $50 million to make any surface a smart surface in the next 4 to 5 years.

Is there a pre-sale ?

[22] http://vitalik.ca/general/2017/06/09/sales.html

Before August 9th early Lampix partners will be able to purchase PIX tokens at a 20% bonus. This is limited to $15mil. The amount bought will be deducted from the 1st day's $20mil.

How much is a PIX at launch?

One PIX is equivalent to $0.12 during the Crowdsale Token Launch.

What is the total amount of PIX Issued?

There is a total supply of approximately one billion PIX tokens. The following is how the tokens are going to be distributed:

- Issued: 50% of the tokens will be issued for the ICO
- Reserves: 30% will be used for data purchase
- Company/Team: 20% will be used for research and development

When will PIX tokens be distributed and then sold on the secondary market?

We expect to distribute PIX two weeks post crowdsale token launch and make it available on the secondary market within a month.

What will make the token value?

PIX tokens' value stems from the time/effort put into mining the {image, description, segmentation} couples.

Moreover, the PIX token is the gas to drive your Lampix to do vision and machine learning with the help of cloud computing power. PIX tokens are used to pay for the cloud computing service at a rate of $9.00 per a month. But you can also use the PIX tokens to pay for data for any other Augmented Reality system.

The demand for PIX will increase the value of it on the secondary market.

How will the reserve be used?

The tokens set in reserve will be under the following rules:

1. 25% will be locked for 12 months
2. 25% will be locked for 24 months
3. 25% will be locked for 36 months
4. 25% will be locked for 48 months
5. At each release of tokens

a) 30% will be used for data acquisition costs, development, marketing and other corporate needs.
b) 50% will be allocated to acquire other companies, patent needs, and IP needs
c) 10% will be allocated to external partners if needed
d) 10% will be distributed to all PIX token holders (air drop) proportionally to their then holdings in PIX tokens.

How will the Teams' tokens be used?

Tokens set aside for the team (20% of total) will be used as follows:

- 25% of them will be available in the same time as for the public, roughly 1 month after the CTL.
- 25% of them will be locked for 12 months
- 25% of them will be locked for 24 months
- 25% of them will be locked for 36 months

Why are you locking the team's reserve?

Because we want to demonstrate that we are in this for the long run and that the team's incentives are aligned with the token holder's interest.

Where can I learn more about Lampix?

The best way to learn more about Lampix is by reading our whitepaper, FAQ, or asking us directly at our Slack Team. Please use the following resources for more information as well:

- Website
- Slack Team
- Facebook
- Youtube
- Medium
- Steemit
- Reddit
- Twitter
- Forum.Bitcoin.org
- Bitcointalk.org

Lampix Database Platform

Why do we need a {image, description, segmentation} database?

Any application that uses computer vision and machine learning (example: self-driving cars, Google Glasses, HoloLens, MetaGlasses, other augmented reality systems, etc.) needs to be trained. Three types of data are needed: training, validation, and testing.

It is like training a human baby to talk: you need to show them, say what it is, and make the baby repeat and verify that what they said is accurate or correct it.

There are two parts in making the perfect computer vision system: a lot of data and good algorithms.

It takes a lot of data in different contexts to train a good computer vision system.

We believe using crowdsourcing and blockchain is the best approach to building such a database.

Why Crowdsourcing and blockchain?

Existing databases are controlled by the company who built them. Google, for example, has made such a database[23]. However, there are two problems with this approach: Google controls this database and can at any moment forbid their competitors from using it, remove access to it, etc. Secondary, this database includes only the data Google thinks is needed.

We want the world where no single company, and not Lampix neither, will control who has access to the data, and what data should go in the database. No centralized control. This is why we are working on the blockchain. This database will be available to any miners or users to who earn or pay PIX tokens.

What else can the blockchain help with?

We also plan to include on the blockchain a hash of each image once it is approved and entered into the database. This will address 2 concerns:

1. We want users to know for certain the image has not been tampered with.

[23] https://research.google.com/youtube8m/index.html

2. And we want users to know that they used the full data set and no actual image has been removed or added.

This mechanism increases the security of the data in the database.

Why do we need a billion images database?

Based on experiences of companies like Google with their machine vision database 1-billion-data points seems to be a size that is meaningful and useful for a large set of systems and applications.

Why do you submit images?

You will receive PIX tokens in return for submitting images, approximately $0.0079 per {image, description, segmentation} set that pass the voting standards and is added to the database.

How do you prevent people from submitting the same image?

Out database will run a test against existing images to rule this option out.

Why submit images when I can make more money voting?

You make approx. 4x more PIX tokens submitting {image, description, segmentation} set at the same amount of work.

What is voting and why would you do it?

Voting is the process of agreeing on the description and image match. Voting allows users to contribute to the database with up votes or down votes while also being paid in PIX tokens.

Why would someone vote on the images?

Because you get paid in tokens.

How do you prevent "hater" votes or people just randomly voting?

Voters will only receive PIX tokens if their vote aligns with the consensus of the image.

How do we decide what image classes are needed?

Like in existing databases we will create a tree of categories that we are willing to pay for. We will attach a token value to each branch, sub-branch, and leaf. Other people can also

add branches to the tree and attach PIX tokens bounties on them for the crowd to mine the {image,description} for the branch.

Other than earning PIX tokens, what is the benefit from creating this database?

Any other Augmented reality systems like HoloLens or Google Glasses will be able to use this database (and pay for it in PIX) to access it. We believe Augmented Reality will revolutionize humanity more than Virtual Reality and will change how we interact with technology.

Lampix Device

Why do you want smart surfaces or Augmented Reality?

The ability to transform any surface into an interactive computer (augmented reality) is going to unleash applications we have not even conceived of. Think how much smartphones changed how we live. This is going to be a similar impact. A few examples of many include remotely interacting with a co-worker's strategic plan on paper and then uploading it to a shareable document, ordering food at a restaurant, to even having fun playing a game of chess. Take a look at our YouTube channel[24] to see some examples in action. Ultimately, the goal of augmented reality is to make tasks easier to execute and/or more exciting.

How do you buy a Lampix device? Can I use PIX tokens or fiat?

You buy a Lampix device with PIX Tokens. However, you can use your credit card, which will automatically convert local fiat into PIX. Once you have a device you can earn the Tokens back by mining images for the database.

Is it compulsory to have a Lampix device for mining?

No. you do not have to use Lampix for mining but it is probably the easiest way.

What sort of computing power is required for mining?

That there is no computing required. Mining in this context is much more similar to mining diamonds than Bitcoin mining.

Why should someone care about a database which is just used to make Lampix better?

[24] https://www.youtube.com/channel/UCY3N6_p3fWC76XFrQlid0vQ

Any other Augmented reality systems like HoloLens or Google Glasses will be able to use this database (and pay for it in PIX) to access it. We believe Augmented Reality will revolutionize humanity more than Virtual Reality and will change how we interact with technology.

In addition, as the Lampix data ecosystem grows, the more applications can be made, which will make your Lampix experience even more exciting and useful.

What is the basic unit of value for the PIX token? (Such as user's attention in BAT or gold used to be for money)

PIX tokens' value stems from the time/effort put into mining the {image,description} couples.

Moreover, the PIX token is the gas to drive your Lampix to do vision and machine learning with the help of cloud computing power. PIX tokens are used to pay for the cloud computing service at a rate of $9.00 per a month. But you can also use the PIX tokens to pay for data for any other Augmented Reality system.

What is meant by "for each submitted image you get 30 images free"?

We are often asked how do you price mining and use the images. The idea is that one image submitted will come in handy for multiple people, therefore the price should be lower. We use this rule of thumb of you get as many tokens for submitting a image as you have to pay to download 30 images.

Why would you need 30 images, what would you do with them?

Images are used to train computer vision systems. If you are building a computer vision system you will need tens of thousands or more {image, description, segmentation} sets to train and test your system. The sets are not useful unless you are building such a system. People who build Lampix apps, for example, will sometimes need to use these sets.

How does the token scheme take advantage of the distributed/decentralized nature of Ethereum?

We are doing {image, description, segmentation} sets mining. For each set submitted, we will first run some computer vision algorithms to discard doubles and obviously not correct images. We will then ask the distributed user base to vote on the images to make sure the

image and description match. And everybody (miners and voters) is paid once the set has been accepted in the database.

Why is there a need to buy data for machine learning from this database?

Lampix is just one platform among many others in this market. This database can be used for other platforms like HoloLens, Google Glasses, and any other AR platform as well.

How do you pay for Ethereum gas?

We need to pay for Ethereum gas when we make PIX payments. We will simply charge in PIX at each transaction to pay for it exactly like ETH. Therefore, if you send 10 pix the receiver will likely receive about 9.999 PIX

Financial Model

Is Token sale your revenue? Isn't it like your equity capital?

The token sale is our revenue.

Retail sector - Are you assuming that all the users are required to subscribe to the cloud?

Yes, all users need cloud access as most of the computer vision is done in the cloud.

Retail sector- Is the app price recurring monthly? Or are you assuming each user to buy 3 apps each Month?

No, it is a one-time fee, each user will buy about 3 apps per month at $1 each.

For more customization, a customer needs to spend $5k to get Lampix in their shop/location to do something they want. It is based on our present experiences.

Small business sector - All the small businesses are developing an app. Is this realistic?

More customize, aka spend $5k to get Lampix in their shop/location to do something they want. I think it is based on present experience.

Why is most of the revenue coming from small businesses?

In general small businesses represent larger sales but fewer sales. Retail represents smaller sales but more sales. We have about 1 year of experience selling Lampix to businesses and we built our financial model based on that experience.

Strategic sector - B2B project large scale - Excel formula appears to consider small scale 10% also. Is this correct?

Yes, it is, as only 10% of those who do a small scale will also do strategic, we think.

How to you decide on the cost of a mined image as $0.007891?

This cost figure is arrived at with the following assumptions:

- A user will need to recover the cost of Lampix device in two months (i.e. $250 per month)
- User can work time per month is 316,800 in seconds (i.e. 04 hours a day for 22 days)
- Time required to mine a image is 10 seconds
- Number of images per user per month is then 31,680 (i.e. 316800/10)

Now the cost to be recovered a month ($250) divided by no of images a month (i.e. 31680) gives us the cost of mined image, which is $0.007891.

Legal

What is our legal name?

Smart Lamp Inc., Delaware Corp.

Do you have AML/KYC policies?

Yes, we do. We are going to implement the highest standards of Anti-Money Laundering and Know Your Client to fend off money laundering and will report any suspicious activities to local financial intelligence units such as FINCE.

What regions are you serving?

We are serving the global market for anyone who is interested in Lampix and wants to be a part of the growing augmented reality ecosystem.

Do token holders get an equity stake?

No. Token holders do not get any equity ownership.

Is this token sale registered with US SEC?

Token sales or ICOs are not currently regulated by the U.S. Securities and Exchange Commission. Therefore, they are not registered with any government organization.

Other

Is Lampix hiring?

Yes, we are. Please check out our careers page on lampix.co.

Have you already raised funds for this project?

Yes. Lampix has already raised USD 200,000 through a seed round.

MEDIA MENTIONS

Given below are some of the media coverage/mentions of Lampix

Source	Type	Publication	Shortened Link
Self	AR Games	YouTube	http://bit.ly/2rZa2o3
Self	Collaboration	YouTube	http://bit.ly/2tke2Ds
Self	For Developers	YouTube	http://bit.ly/2aO07fK
TechCrunch Disrupt	Video	Twitter Video	http://bit.ly/2t0pBNi
TechCrunch Disrupt	Video	Computer World	http://bit.ly/2sluBKs
TechCrunch Disrupt	Video	IT World	http://bit.ly/2sm6E5U
TechCrunch Disrupt	Video Interview	TechCrunch Disrupt Video	http://bit.ly/2s1dy1c
TechCrunch Disrupt	Video	PC Welt	http://bit.ly/2s0XQ68
TechCrunch Disrupt	Video	IDG Now!	http://bit.ly/2sQKA76
TechCrunch Disrupt	Article	IF NR	http://bit.ly/2tkBHn4
TechCrunch Disrupt	TV Video	Pro TV	http://bit.ly/2sQxc2K
TechCrunch Disrupt	Article	Baaz	http://bit.ly/2tkdbm1
TechCrunch Disrupt	Video	Reseller News	http://bit.ly/2tjSbfq
TechCrunch Disrupt	Article	Highway 1 Blog	http://bit.ly/2slsDdi
TechCrunch Disrupt	Article	Consumer Tech. Assoc.	http://bit.ly/2tk6oZC
TechCrunch Disrupt	Video	PC Welt	http://bit.ly/2tkceKN
SXSW	Article	Next reality	http://bit.ly/2tog5Xn
SXSW	Article	Digital Trends	http://bit.ly/2tjHPvY
SXSW	Article	Num Rush	http://bit.ly/2s1q806
SXSW	Article	Med City News	http://bit.ly/2tXkgqe
SXSW	Article	Silicon Valley Bus. Journal	http://bit.ly/2sqWLv2
SXSW	Article	36Kr	http://bit.ly/2tkC9Si
SXSW	Article	BZB.ro	http://bit.ly/2to4DLw
SXSW	Article	Les Affaires	http://bit.ly/2tnXFWQ
SXSW	Article	L'Usine Digitale	http://bit.ly/2mKWfhk
SXSW	Video	Mashable	http://on.mash.to/2sQvfDx
SXSW	Article	Futurism	http://bit.ly/2t0D5sE
SXSW	Article	Fast moving targets	http://bit.ly/2t0vRVe
SXSW	Article	Drimble	http://bit.ly/2shfKpp
SXSW	Article	Next Reality	http://bit.ly/2uhEz0O
SXSW	Article	Tech AO Minuto	http://bit.ly/2sQg3pY
SXSW	Article	Tech Able JP	http://bit.ly/2uhDFBH
SXSW	Article	Know Your Leak	http://bit.ly/2uhuGQT
SXSW	Article	Biz Brasov	http://bit.ly/1DuGliV
SXSW	Article	Olhar Digital	http://bit.ly/2s1o2xt
SXSW	Article	Plekkie	http://bit.ly/2sh2m4I
SXSW	Article	Realidad Aumentada Peru	http://bit.ly/2shd9f5
SXSW	Article	Next Reality	http://bit.ly/2tobkwS
SXSW	Article	Disruptors Daily	http://bit.ly/2uhELx4
VivaTech	Article	Ladn.EU	http://bit.ly/2tnTY3o

PATENT INFORMATION

Lampix has already applied for a provisional patent and the content of the same is given below.

PROVISIONAL PATENT APPLICATION FOR METHOD AND APPARATUS FOR PROVIDING USER INTERFACES WITH COMPUTERIZED SYSTEMS AND INTERACTING

WITH A VIRTUAL ENVIRONMENT

Background of the Invention

The present invention relates to the fields of augmented reality and user interfaces for computerized systems. Augmented reality technologies allow virtual imagery to be presented in real-world physical environments. The present invention allows users to interact with these virtual images to perform various functions.

The personal computer has been a huge boon for productivity, adapting to the needs of a wide variety of personal and professional endeavors. Despite the ongoing evolution of personal computing, one divide is persistent. Physical documents and digital files interact in limited ways. People need to interrupt their workflow to print files or scan documents, and changes in one realm are not reflected across mediums. Many types of user interface devices and methods are available, including the keyboard, mouse, joystick, and touch screen, but computers and digital information have limited interaction with a user's physical workspace and documents.

Recently, interactive touchscreens have been used for presenting information on flat surfaces. For example, an image may be displayed on a touchscreen, and a user may interact with the image by touching the touchscreen, causing the image to change. However, in order to interact with the image displayed on the touchscreen, the user must actually come in contact with the touchscreen. By requiring contact with a touchscreen to provide interactivity, a large number of potential users are not engaged by current interactive displays. Since only one user may interact with a touchscreen at a time, additional users are also excluded. Moreover, interactivity is limited by the size and proximity of the touchscreen.

Other systems or methods for interacting with virtual environment rely on image processing rather than tactile interfaces. Image processing is used in many areas of analysis, education, commerce, and entertainment. One aspect of image processing includes human-

computer interaction by motion capture or detecting human forms and movements to allow interaction with images through motion capture techniques. Applications of such processing can use efficient or entertaining ways of interacting with images to define digital shapes or other data, animate objects, create expressive forms, etc.

With motion capture techniques, mathematical descriptions of a human performer's movements are input to a computer or other processing system. Natural body movements can be used as inputs to the computer to study athletic movement, capture data for later playback or simulation, enhance analysis for medical purposes, etc.

Although motion capture provides benefits and advantages, motion capture techniques tend to be complex. Some techniques require the human actor to wear special suits with high-visibility points at several locations. Other approaches use radio-frequency or other types of emitters, multiple sensors, and detectors, blue-screens, extensive post-processing, etc. Techniques that rely on simple visible-light image capture are usually not accurate enough to provide well-defined and precise motion capture.

More recently, patterned illumination has been used to discern physical characteristics like an object's size, shape, orientation, or movement. These systems generally project infrared light, or other nonvisible spectra, which is then captured by a visual sensor sensitive to the projected light. As an example, U.S. Pat. No. 8,035,624, whose disclosure is incorporated herein by reference, describes a computer vision based touch screen, in which an illuminator illuminates an object near the front side of a screen, a camera detects interaction of an illuminated object with an image separately projected onto the screen by a projector, and a computer system directs the projector to change the image in response to the interaction.

Other similar systems include an interactive video display system, U.S. Patent No. 7,834,846, in which a display screen displays a visual image, and a camera captures 3D information regarding an object in an interactive area located in front of the display screen. A computer system directs the display screen to change the visual image in response to changes in the object.

Yet another method is the Three-Dimensional User Interface Session Control, U.S. Patent No. 9,035,876, in which a computer executes a non-tactile three dimensional (3D) user interface, a set of multiple 3D coordinates representing a gesture by a hand positioned within a field of view of a sensing device coupled to the computer, the gesture including a first motion in a first direction along a selected axis in space, followed by a second motion in

a second direction, opposite to the first direction, along the selected axis. Upon detecting completion of the gesture, the non-tactile 3D user interface is transitioned from a first state to a second state.

Summary of the Invention

The invention is a device that delivers the functionality of the personal computer ("PC") to the physical desktop. The device provides seamless integration between paper and digital documents, creating an augmented office space beyond the limited screens of current devices. The invention makes an entire desk or office space interactive, allowing for greater versatility in user-computer interactions. The invention provides these benefits without adding additional obtrusive hardware to the office space. Contained within a lighting fixture or other office fixture, the invention reduces clutter beyond even the slimmest laptops or tablets.

Some portions of the detailed descriptions, which follow, are presented in terms of procedures, steps, logic blocks, processing, and other symbolic representations of operations on data bits that can be performed on computer memory. These descriptions and representations are the means used by those skilled in the data processing arts to most effectively convey the substance of their work to others skilled in the art. A procedure, computer executed step, logic block, process, etc., is here, and generally, conceived to be a self-consistent sequence of steps or instructions leading to a desired result. The steps are those requiring physical manipulations of physical quantities. Usually, though not necessarily, these quantities take the form of electrical or magnetic signals capable of being stored, transferred, combined, compared, and otherwise manipulated in a computer system. It has proven convenient at times, principally for reasons of common usage, to refer to these signals as bits, values, elements, symbols, characters, terms, numbers, or the like.

It should be borne in mind, however, that all of these and similar terms are to be associated with the appropriate physical quantities and are merely convenient labels applied to these quantities. Unless specifically stated otherwise as apparent from the following discussions, it is appreciated that throughout the present invention, discussions utilizing terms such as "projecting" or "detecting" or "changing" or "illuminating" or "correcting" or "eliminating" or the like, refer to the action and processes of an electronic system (e.g., an interactive video system), or similar electronic computing device, that manipulates and transforms data represented as physical (electronic) quantities within the electronic device's registers and memories into other data similarly represented as physical quantities within the electronic

device memories or registers, or other such information storage, transmission, or display devices.

Some described embodiments may use a video camera which produces a three-dimensional (3D) image of the objects it views. Time-of-flight cameras have this property. Other devices for acquiring depth information (e.g., 3D image data) include but are not limited to a camera paired with structured light, stereo cameras that utilize stereopsis algorithms to generate a depth map, ultrasonic transducer arrays, laser scanners, and time-of-flight cameras. Typically, these devices produce a depth map, which is a two-dimensional (2D) array of values that correspond to the image seen from the camera's perspective. Each pixel value corresponds to the distance between the camera and the nearest object that occupies that pixel from the camera's perspective. Moreover, while the embodiments of the present invention may include at least one time-of-flight camera, it should be appreciated that the present invention may be implemented using any camera or combination of cameras that are operable to determine three-dimensional information of the imaged object, such as laser scanners and stereo cameras.

The invention uses one or more visual sensors to monitor a workspace. In one embodiment, a visual sensor is a camera that is operable to capture three-dimensional information about the object. In one embodiment, the camera is a time-of-flight camera, a range imaging camera that resolves distance based on the speed of light. In one embodiment, the object is a user. In one embodiment, the distance information is used for person tracking. In one embodiment, the distance information is used for feature tracking. Feature tracking would be useful in creating a digital representation of a 3D object and/or distinguishing between different 3D objects.

A workspace may be a desk, chalkboard, whiteboard, drafting table, bookshelf, pantry, cash register, checkout area, or other physical space in which a user desires computer functionality. In monitoring the workspace, the device recognizes physical objects—for example, documents or books—and presents options for various functions performed by a computer on the object. To present options, the device may utilize a projector. The projector may create an image on a surface of the workspace representing various options as menu items by words or other recognizable symbols. Options may also be presented on another device accessible to the users and linked with the present invention—for example, a smartphone, tablet, computer, touchscreen monitor, or another input device.

Displayed images or items can include objects, patterns, shapes, or any visual pattern, effect, etc. Aspects of the invention can be used for applications such as interactive lighting effects for people at clubs or events, interactive advertising displays, characters and virtual objects that react to the movements of passers-by, interactive ambient lighting for public spaces such as restaurants, shopping malls, sports venues, retail stores, lobbies and parks, video game systems, and interactive informational displays. Other applications are possible and are within the scope of the invention.

In general, any type of display device can be used in conjunction with the present invention. For example, although video devices have been described in the various embodiments and configurations, other types of visual presentation devices can be used. A light-emitting diode (LED) array, organic LED (OLED), light-emitting polymer (LEP), electromagnetic, cathode ray, plasma, the mechanical or another display system can be employed.

Virtual reality, three-dimensional, or other types of displays can be employed. For example, a user can wear imaging goggles or a hood so that they are immersed within a generated surrounding. In this approach, the generated display can align with the user's perception of their surroundings to create an augmented, or enhanced, reality. One embodiment may allow a user to interact with an image of a character. The character can be computer generated, played by a human actor, etc. The character can react to the user's actions and body position. Interactions can include speech, co-manipulation of objects, etc.

Multiple systems can be interconnected via a digital network. For example, Ethernet, Universal Serial Bus (USB), IEEE 1394 (Firewire), etc., can be used. Wireless communication links, such as defined by 802.11b, etc., can be employed. By using multiple systems, users in different geographic locations can cooperate, compete, or otherwise interact with each other through generated images. Images generated by two or more systems can be “tiled” together, or otherwise combined to produce conglomerate displays.

Other types of illumination, as opposed to light, can be used. For example, radar signals, microwave or other electromagnetic waves can be used to advantage in situations where an object to detect (e.g., a metal object) is highly reflective of such waves. It is possible to adapt aspects of the system to other forms of detection, such as by using acoustic waves in air or water.

Although computer systems have been described to receive and process the object image signals and to generate display signals, any other type of processing system can be used. For example, a processing system that does not use a general-purpose computer can be

employed. Processing systems using designs based on custom or semi-custom circuitry or chips, application specific integrated circuits (ASICs), field-programmable gate arrays (FPGAs), multiprocessor, asynchronous or any type of architecture design or methodology can be suitable for use with the present invention.

To illustrate, if the user placed a business card on her desk, for instance, the device would recognize the business card and present the user with options germane to the contact information contained in the business card such as save, email, call, schedule a meeting or set a reminder. Save would use text recognition to create a new contact in the appropriate software containing the information from the business card. In another embodiment, the device may also recognize when multiple similar documents are present—for example, ten business cards—and present options to perform batch functions on the set of similar documents, for example, save all.

In one embodiment, the device presents options by projecting menu items in proximity to the recognized object as shown in Fig. 5. The device recognizes documents in real time, such that moving a document will cause the associated menu items to move with it. The device also tracks and distinguishes multiple documents. As shown in Fig. 5, the projected pairs of brackets A and B correspond to distinct documents, each of which has its own associated menu of options.

To perform a function, the user touches a menu item. The device recognizes when the user's hand engages with a menu item and performs the function associated with the selected menu item. A possible function includes uploading an image of the document or object to Dropbox. When the user touches the "Dropbox" button, as seen in Fig. 5, the device will take a image of the document or object and upload that image to the user's Dropbox account. It will be understood that Dropbox is only an example of the many available services for storing, transmitting, or sharing digital files, which also include Box, Google Drive, Microsoft OneDrive, and Amazon Cloud Services, for example.

In one embodiment, the invention can recognize text and highlight words on a physical document. For example, a user reading a lease may want to review each instance of the term landlord. The device would find each time the term "landlord" occurs on the page and highlight each instance using the projector. In another exemplary embodiment, the device would have access to a digital version of the document and would display page numbers of other instances of the search term—for example, "landlord"—in proximity to the hard copy document for ease of reference by the user. In yet another embodiment, the device could

display an alternate version of the document in proximity to the hard copy version for the user to reference while also highlighting changes in the hard copy document, the digital version, or both.

The device may also recognize markings by the user on a hard copy document and interpret those markings to make changes in the digital version of the document. Such markings could include symbols common in text editing, symbols programmed by the user, or symbols created for the particular program the user is interacting with. For example, a graphic designer may use certain symbols to be translated into preselected design elements for a digital rendering.

Another exemplary function is sharing. When the user touches the "Share" button, the device will take an image or video of the document or object and share the image or video via a selected service by, for example, attaching the image to an email or other message service, or posting the image to Facebook, Twitter, a blog, or other social media service. The device may also incorporate sharing features without the use of third-party services.

In another embodiment, the invention can provide an interactive workspace between two or more users, allowing them to collaborate on the same document by representing the input from one user on other workspaces. This functionality can allow for interactive presentations, teaching, design, or development. For example, a student practicing handwriting could follow a tutor's guide as pen strokes are transmitted in real time between the two devices. Or two artists could sketch on a shared document simultaneously. Throughout the process, the device could maintain a digital record of the users' interactions, maintaining a version history for users to view changes over time or revert to previous versions.

In another embodiment, the device may broadcast live video of a document or workspace. For example, the device would present broadcast or stream as a standalone menu option or as a secondary option under the Share menu item. The device would then capture live video of the document or workspace area. The device would also provide options for distributing a link, invitation, or other means for other parties to join and/or view the live stream.

To illustrate further, an accountant may wish to remotely review tax documents with a client. The accountant would initiate the live stream by selecting the appropriate menu option. The device would recognize the associated document and broadcast a video of that document. If the accountant wanted to review multiple documents, she could select the

appropriate sharing or streaming option for each relevant document. The device could present options to stream various documents or objects simultaneously or alternately as selected by the user.

In another embodiment, the accountant could "share" or "stream" a portion of her workspace distinct from any individual document or object, but that could include multiple documents or objects. In this case, the user may select "share" or "stream" from a default menu not associated with a particular document. The device would then project a boundary to show the user the area of the workspace captured by the camera for sharing or streaming purposes. The user could adjust the capture area by touching and dragging the projected boundary. The user could also lock the capture area to prevent accidentally adjusting the boundary. To illustrate, a user may be a chef wanting to demonstrate preparing a meal. The device may recognize a cutting board and provide an option to share or stream the cutting board, but the chef may need to demonstrate preparation techniques outside of the cutting board area. The chef could select the share or stream option from the workspace menu and adjust the capture area to incorporate all necessary portions of the workspace. That way, the chef could demonstrate both knife skills for preparing vegetables and techniques for rolling pasta dough in the same capture frame.

The user may also transition from document sharing or stream to workspace sharing or streaming by adjusting the capture boundary during capture when the capture boundary is not locked.

In one embodiment, the device may recognize that two documents or objects are substantially similar and offer a compare option as a menu item. If the user selected "compare," the device would use text recognition to scan the documents and then highlight differences between the two. Highlighting would be portrayed by the projector. Alternatively, the device may compare a physical document and a digital version of a substantially similar document. The device would then display differences either on the physical documents as described above or on the digital document or both. The device could display the digital document by projecting an image of the document onto a surface in the workspace or through a smartphone, tablet, laptop, desktop, touchscreen monitor, or other similar apparatus linked to the device.

In one embodiment, the device may check documents for spelling errors and highlight them on either a physical or digital version of the document. The device may also recognize citations or internet links in physical documents and present the referenced material

through the projector or other display means previously mentioned. For example, a business card may contain a link to a person's social media accounts (e.g., LinkedIn). In processing the information contained in the business card, for example, the device could incorporate other contact information from online sources, or provide an option to connect with the person via social media accounts.

In one embodiment, the device may recognize an object and provide an option to search a database or the Internet for that object and information related to that object. For example, the device may identify a book by various features including title, author, year of publication, edition, or international standard book number (ISBN). With that information, the device could search the internet for the book to allow the user to purchase the book, read reviews of the book, see an article citing the book, or view works related to the book. For example, if the user was viewing a cookbook, the device could create a shopping list for the user based on ingredients listed in the recipe. The device could also create and transmit an order to a retailer so that the desired ingredients could be delivered to the user or assembled by the retailer for pickup.

In another embodiment, the device may recognize objects like food items. Many food items have barcodes or other distinguishing characteristics that could be used for identification. Deployed in the kitchen, the device could track a user's grocery purchases to maintain a list of available food. This feature may be accomplished by using the device to scan grocery store receipts. This feature may also be accomplished by using the device of recognizing various food items as they are unpacked from grocery bags and place in storage. The device could then also recognize food items as they are used to prepare meals, removing those items from a database of available foods. The device may also access information on freshness and spoilage to remind a user to consume certain foodstuffs before they go bad. The device may display recipes based on available food items and other parameters desired by the user. While the user is cooking, the device may provide instructions or other information to assist the user. The device may also create grocery lists for the user based on available food stuff and past purchasing behaviors. The device may also order certain food items for delivery at the user's request.

The device may also be employed to improve workspace ergonomics and enabled richer interaction with digital objects. For example, when the device is displaying a traditional computer interface like in Fig. 4, the device may adjust the projected image to create an optimal viewing experience for the user. This could be accomplished in part by applying eye-tracking methods, which are known in the art. Projection adjustments could include

basic modifications like increasing or decreasing text size based on the user's proximity to the projected image. More complex modifications could include changing the perspective of the projected image based on the user's viewing angle and the orientation of the projector and projection surface. Projected images may also be adjusted for other workspace characteristics like the brightness of the surrounding area, the reflectivity of the projection surface, or the color of the projection surface—for example, factors which affect the viewability of the projected image. Advanced image manipulation could give the user the impression of one or more 3D objects.

In one embodiment, the device may recognize design schematics of a building, for example, either in hard copy or in a digital format using computer-aided design software known in the art. The device may then represent the design and/or building model in 2D and/or 3D format across the workspace using the projector or other display technologies previously enumerated.

In another embodiment, processing can be divided between local and remote computing devices. For example, a server may construct a high-resolution dense 3D model while user interactions are transmitted over a communication network to manipulate the model. Changes to the model are calculated by the service and returned to the user device. Concurrently with this, a low-resolution version of the model is constructed locally at the user device, using less processing power and memory, which is used to render a real-time view of the model for viewing by the user. This enables the user to get visual feedback from the model construction from a local processor, avoiding network latency issues.

In another embodiment, the device could recognize a user's interaction with one or more perceived 2D or 3D objects. The projector or other display technology previously enumerated, could create an image of a 3D building for one or more users, for example. A user could manipulate the digital object by interacting with the borders of the perceived object. The device would recognize when the user's hands, for example, intersect with the perceived edge of a digital object and adjust the image according to the user's interaction. The user may, for example, enlarge the building model by interacting with the model at two points and then dragging those two points farther away from each other. Other interactions could modify the underlying digital object—for example, making the model building taller or shorter.

In one embodiment, the device may track different documents that are referenced by the user at the same time. For example, if an accountant reviews a client's tax documents, the

device would recognize that the document could be related because of their physical and temporal proximity in the user's workspace. The device could then associate those documents using metadata, tags, or categories. Other indicia of relatedness may also be employed by the device's recognition function—for example, the appearance of similar names or terms. The user may also indicate other types of relatedness depending on the nature of the object.

In one embodiment, the device may employ its recognition function to track the physical location of documents or other objects to help users later find those objects. For example, an accountant may reference a binder containing a client's tax documentation including a W-2 form from a prior year. The device may track characteristics of the document and the binder containing the document as the user places the binder on a bookshelf in the workspace. Later, the accountant may want to reference the document again and could query the device to show the location of the document by interacting with projected menu options or another input device previously enumerated. The device could then highlight the appropriate binder using the projector. The device may also track frequently referenced documents to suggest optimized digital and physical organization schemes based on reference frequency and/or other characteristics.

The invention will also allow for interaction by voice command, separate or in conjunction with other input modes. The invention will also allow for the implementation of additional functionality by developers and users.

The invention has another distinct advantage over computers: it will also function as a working lamp. As shown in Fig. 6, the lamp may be controlled through the default menu items, which include "Up" and "Down" to adjust the brightness of the lamp.

In one embodiment, the device has one or more visual sensors, one or more projectors, one or more audio sensors, a processor, a data storage component, a power supply, a light source, and a light source controller. One possible configuration of the device is shown in Figs. 1-3.

These interactive display systems can incorporate additional inputs and outputs, including, but not limited to, microphones, touchscreens, keyboards, mice, radio frequency identification (RFID) tags, pressure pads, cellular telephone signals, personal digital assistants (PDAs), and speakers.

These interactive display systems can be tiled together to create a single larger screen or interactive area. Tiled or physically separate screens can also be networked together, allowing actions on one screen to affect the image on another screen.

In an exemplary implementation, the present invention is implemented using a combination of hardware and software in the form of control logic, in either an integrated or a modular manner. Based on the disclosure and teachings provided herein, a person of ordinary skill in the art will know of other ways and/or methods to implement the present invention.

It will be appreciated that the embodiments described above are cited by way of example, that the present invention is not limited to what has been particularly shown and described hereinabove, and that various modifications or changes in light thereof will be suggested to persons skilled in the art and are to be included within the spirit and purview of this application and scope of the appended claims. All publications, patents, and patent applications cited herein are hereby incorporated by reference for all purposes in their entirety. The scope of the present invention includes both combinations and sub-combinations of the various features described hereinabove, as well as variations and modifications thereof which would occur to persons skilled in the art upon reading the foregoing description and which are not disclosed in the prior art.

Legal disclaimer

Company has prepared a white paper and other materials concerning the sale of [PIX] Tokens and the Project, which are available at https://lampix.co/token.html (the "White Paper"). The White Paper, as it may be amended from time to time, is hereby incorporated by reference.

The [PIX] Tokens will be distributed to buyers thereof pursuant to the [PIX] Distribution Contract. Company makes no representations or warranties, express or implied, including, without limitation, any warranties of title or implied warranties of merchantability or fitness for a particular purpose with respect to the [PIX] Distribution Contract or the [PIX] Tokens or their utility, or the ability of anyone to purchase or use the [PIX] Tokens. Without limiting the foregoing, none of the Company Parties represent or warrant that the process of purchasing and/or receiving the [PIX] Tokens will be uninterrupted or error-free or that the [PIX] Tokens are reliable and error-free. As a result, Buyer acknowledges and understands that Buyer may never receive [PIX] Tokens and may lose the entire amount Buyer paid to Company. Buyer shall provide an accurate digital wallet address to Company for receipt of any [PIX] Tokens distributed to Buyer pursuant to the [PIX] Distribution Contract.

The sale of [PIX] Tokens and the [PIX] Tokens themselves are not securities, commodities, swaps on either securities or commodities, or a financial instrument of any kind. Purchases and sales of [PIX] Tokens are not subject to the protections of any laws governing those types of financial instruments. This Agreement and all other documents referred to in this Agreement including the White Paper do not constitute a prospectus or offering document, and are not an offer to sell, nor the solicitation of an offer to buy an investment, a security, commodity, or a swap on either a security or commodity.

Buyer should not participate in the [PIX] Token Distribution or purchase [PIX] Tokens for investment purposes. [PIX] Tokens are not designed for investment purposes and should not be considered as a type of investment. Buyer acknowledges, understands and agrees that Buyer should not expect and there is no guarantee or representation or warranty by Company that: (a) the Project will ever be adopted; (b) the Project will be adopted as developed by Company and not in a different or modified form; (c) a blockchain utilizing or adopting the Project will ever be launched; and (d) a blockchain will ever be launched with or without changes to the Project.

Buyer acknowledges and agrees that Buyer is not purchasing [PIX] Tokens for purposes of investment, speculation, as some type of arbitrage strategy, for immediate resale or other financial purposes.

The Project is still under development and may undergo significant changes over time. Although Company intends for the Project to have the features and specifications set forth in the White Paper, Company may make changes to such features and specifications for any number of reasons, any of which may mean that the [PIX] Platform does not meet Buyer's expectations.

Buyer acknowledges and understands that the proceeds from the sale of the [PIX] Tokens will be utilized by Company in its sole discretion. The proceeds may as well be used for a secondary share buy back by the company at its unique discretion.

RISKS

On the Ethereum blockchain, timing of block production is determined by proof of work so block production can occur at random times. For example, ETH contributed to the [PIX] Distribution Contract in the final seconds of a distribution period may not get included for that period. Buyer acknowledges and understands that the Ethereum blockchain may not include the Buyer's transaction at the time Buyer expects and Buyer may not receive [PIX] Tokens the same day Buyer sends ETH.

The Ethereum blockchain is prone to periodic congestion during which transactions can be delayed or lost. Individuals may also intentionally spam the Ethereum network in an attempt to gain an advantage in purchasing cryptographic tokens. Buyer acknowledges and understands that Ethereum block producers may not include Buyer's transaction when Buyer wants or Buyer's transaction may not be included at all.

[PIX] Tokens may be subject to expropriation and or/theft. Hackers or other malicious groups or organizations may attempt to interfere with the [PIX] Distribution Contract or the [PIX] Tokens in a variety of ways, including, but not limited to, malware attacks, denial of service attacks, consensus-based attacks, Sybil attacks, smurfing and spoofing. Furthermore, because the Ethereum platform rests on open source software and [PIX] Tokens are based on open source software, there is the risk that Ethereum smart contracts may contain intentional or unintentional bugs or weaknesses which may negatively affect the [PIX] Tokens or result in the loss of Buyer's [PIX] Tokens, the loss of Buyer's ability to access or control Buyer's [PIX] Tokens or the loss of ETH in Buyer's account. In the event of such a software bug or weakness, there may be no remedy and holders of [PIX] Tokens are not guaranteed any remedy, refund or compensation.

The Project and all of the matters set forth in the White Paper are new and untested. The Project might not be capable of completion, implementation or adoption. It is possible that no blockchain utilizing the Project will ever be launched and there may never be an operational platform. Even if the Project is completed, implemented and adopted, it might not function as intended, and any tokens associated with a blockchain adopting the Project may not have functionality that is desirable or valuable. Also, technology is changing rapidly, so the [PIX] Tokens and the Project may become outdated.

The regulatory status of cryptographic tokens, digital assets and blockchain technology is unclear or unsettled in many jurisdictions. It is difficult to predict how or whether governmental authorities will regulate such technologies. It is likewise difficult to predict how or whether any governmental authority may make changes to existing laws, regulations and/or rules that will affect cryptographic tokens, digital assets, blockchain technology and its applications. Such changes could negatively impact [PIX] Tokens in various ways, including, for example, through a determination that [PIX] Tokens are regulated financial instruments that require registration. Company may cease the distribution of [PIX] Tokens, the development of the Project or cease operations in a jurisdiction in the event that governmental actions make it unlawful or commercially undesirable to continue to do so.

The industry in which Company operates is new, and may be subject to heightened oversight and scrutiny, including investigations or enforcement actions. There can be no assurance that governmental authorities will not examine the operations of Company and/or pursue enforcement actions against Company. Such governmental activities may or may not be the result of targeting Company in particular. All of this may subject Company to judgments, settlements, fines or penalties, or cause Company to restructure its operations and activities or to cease offering certain products or services, all of which could harm Company's reputation or lead to higher operational costs, which may in turn have a material adverse effect on the [PIX] Tokens and/or the development of the Project.