LEAN START-UP MANAGEMENT

PROJECT REPORT

LIGHT FIDELITY

SLOT TE1

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MARKET RESEARCH

Market snapshot

The Li-Fi market is expected to register a CAGR of over 70.54 % during the forecast period, 2019 - 2024. Li-Fi is a disruptive technology that is poised to impact many industries. The technology can unlock the potential of IoT, drive Industry 4.0 applications, and lead to the upcoming of light-as-a-service (LaaS) in the lighting industry. The CAGR of wireless traffic has been 60% during the last decade. This growth is expected to sustain for the next 10 to 15 years, which, in the current scenario, is a reasonable assumption, due to the advent of Internet-of-Things and machine type communication (MTC). It corresponds to a demand of 12,000 times the current bandwidth, assuming the same spectrum efficiency.

- The governments are making efforts in the ICT sector, owing to the increasing need for energy management. Owing to government initiatives in the ICT sector, such as implementing smart city transformations, players are enforced to invest and innovate in Li-Fi. For instance, ICT is at the heart of the seven-year Dubai Plan 2021, which builds on investment in advanced technology by the emirate's leadership, in combination with some private sector technology companies.
- Moreover, the European Commission recognizes the enabling role that the ICT sector can play over the forecast period, like rendering buildings more energy efficient or improving the functioning of the electricity grid and managing water. The concept of smart city encompasses optimizing the efficiency of city operations and services and connect citizens.
- The limitations of the visible light provide Li-Fi with a security advantage over Wi-Fi. However, these limitations also create disadvantages. Physical barriers, such as walls and doors limit the operational scope of a Li-Fi-enabled LED lamp. Thus, the data transmitted by a Li-Fi product remains confined within a close spaced because light cannot penetrate opaque objects and has a shorter range. In establishments, such as a house or a building, enabled LED lamps must be strategically placed in rooms, halls, and other sections to expand the scope of the Li-Fi network. A single Wi-Fi router has wider and longer range than a Li-Fi router. These limitations of Li-Fi also do not make it ideal for use in public Wi-Fi networks.
- Moreover, it cannot be used in outdoor environment, like RF signal. This is because of interference caused by sunlight and other optical sources present nearby. Moreover it can be intercepted by unwanted people if used outdoors. Furthermore, Li-Fi is still in the emerging stage and very few have reached the commercialization stage.

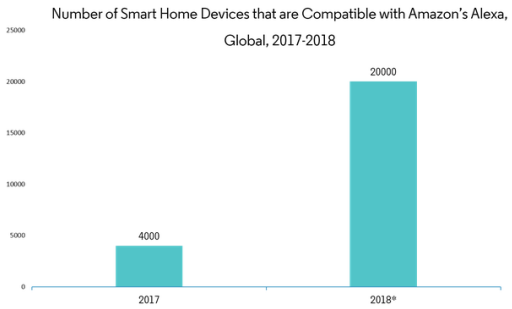
Key Market Trends

Indoor is expected to register a Significant Growth

Smart buildings are currently adapting to accommodate their residents, in order to improve resident comfort and user experience. They do this by knowing the locations of each occupant and then providing location-based services, such as intelligent car parking, health monitoring, logistics, and

shopping assistance. In addition to indoor shopping assistance, location-based service also plays a crucial role in the reduction of building energy cost. The basic idea of Li-Fi technology is to utilize the visible light from an LED light bulb to transmit high-speed data to a photodetector, which is connected to a smartphone or tablet.

Wi-Fi's frequency spectrum is around 2.4GHz or 5GHz, while Li-Fi's frequency spectrum is located in the visible light band. Considering the widespread use of LED bulbs inside buildings and large bandwidth of visible light, Li-Fi technology is much cheaper and more eco-friendly than Wi-Fi. Li-Fi technique has great potential in many popular applications, such as location-based services, mobile connectivity, smart lighting, and hazardous environments. The increasing growth in the use of LED lamps in buildings for lighting provides enormous opportunities for Li-Fi-based applications. As Li-Fi combines the functions of high-speed wireless data communication and indoor lighting infrastructure, it is very cost-effective to be widely utilized in smart buildings.



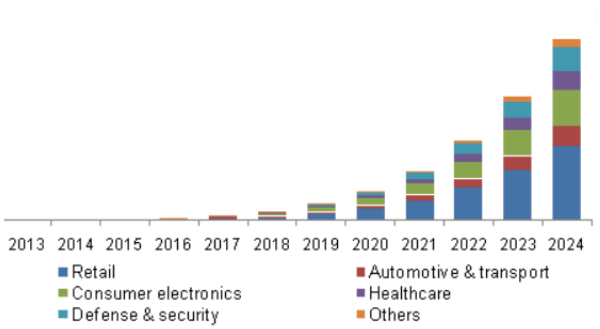
The United States is expected to Hold Major Share

The rapid advancement of information technologies, such as wireless sensor network, Internet of Things, Big Data, and smartphones, has resulted in the development of smart buildings in the North American region. At the end of 2016, around 15 million households in the United States met the definition of smart home, which is expected to increase to more than 20 million households, thereby, offering several opportunities for Li-Fi in the country.

According to the US Green Building Council, buildings contribute a significant portion of energy consumption in the United States. It is reported that buildings account for 70% of electricity load and 39% of carbon oxide emissions. Given an occupant's accurate indoor position, a building management system (BMS) is capable of offering highly efficient heating, cooling, ventilation, and lighting services to the occupant.

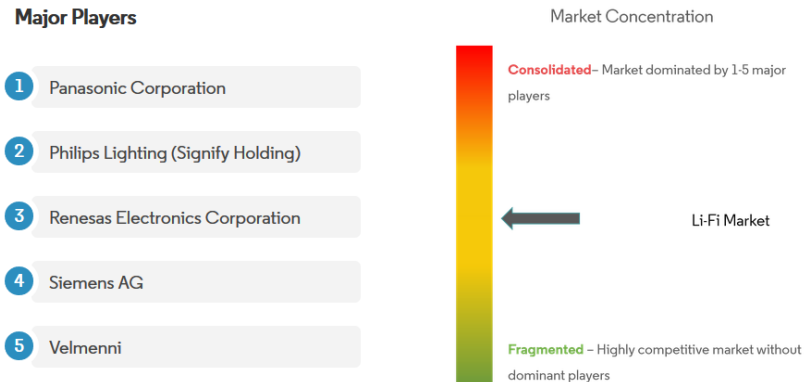
Additionally, the company has also developed advanced algorithms in Li-Fi technology to provide better performance of Li-Fi LED bulbs. Li-Fi technology can connect remote and distant terrains across the country that cannot be reached through optical fibre. It is widely used in smart-city

projects. Increase in investment by government in smart-city project rises the demand of Li-Fi technology. However, lack of awareness of the technology hinders the growth of the market.



Competitive Landscape

The Li-Fi market is highly competitive and consists of several major players. In terms of market share, few of the major players currently dominate the market. These major players with prominent shares in the market are focusing on expanding their customer base across foreign countries. These companies are leveraging on strategic collaborative initiatives to increase their market share and increase their profitability. The companies operating in the market are also acquiring start-ups working on Li-fi technologies to strengthen their product capabilities. In April 2018, PureLifi entered into partnership with Cisco in 5G Rural First project. This project is expected to support and inform the development of the UK's 5G ecosystem, so that it is able to address the needs of communities and businesses in rural locations in ways that 4G, 3G, and 2G have not been able to do. Pure LiFi is one among the project innovators working on 5G radio access technology and dynamic spectrum access.



(II) COMPANY DESCRIPTION

OJJO PVT. LTD.

Mission Statement

We at Ojjo Corporation limited, believe to provide our customers with better connectivity and faster data access rates. Our major objective is to provide a platform for users to communicate with data encrypted over light pulses.

We target to provide our customers with access to all essential resources and make the newer technologies compatible with the existing ones.

Another objective is to provide as many a service centres across the globe to create awareness and the need to shift to LIFI from WIFI.

Form of Business

Ojjo Corporation Ltd, is a hybrid Business model which works on manufacturing devices like LIFI based routers, Optical fibres with low attenuation rates and compact receiver circuit to create a Graphical User Interface for real time processing.

This corporation also gives service to the products and a lifetime warranty on certain products with constraints.

Trademarks, copy write and other Legal issues

The company has been formally registered under the government and has been issued with a GST certificate in June, 2019.

All assets and products that belong to this company have been verified by Hallmark. All right has been reserved; any changes brought to the organization will have a direct impact on product capital.

All the Service Centres have been registered formally under the government.

All legal assets have been verified by the government is clean from any corruption-related disputes.

Products and Services

Services provided

- LIFI Lamp driver repair.
- LIFI dongle repair and replacement
- Lifi services in the disaster management zones, high security and radiation free zones

Management and leadership

This company has been started by 7 VITians with an objective to promote the idea of light to enhance communication.

Local and Geographic Location

This company has its Headquarters in Vellore, Tamil Nadu, and India.

It is currently spread across 4 countries in Asia – India, Bangladesh, Sri Lanka and China.

The Company has 3 main offices in Mumbai, Delhi and Bengaluru.

It currently has 35 service centers across the globe.

Milestones Achieved to date

- On 31st July 2019, Ojjo Corp Ltd, launched its first Smart Phone that allowed access to internet via LIFI.
- On 1st August 2019, Ojjo opened its first R&D center in New Delhi to promote research in the department of LIFI.

Financial Status

- The company has made it to the Sensex and Nifty 2019. It has created 15 service centers across the country
- In India, Ojjo has about 500 employees.
- Ojjo at present, is a 1.5-million-dollar company**.**

(III) INDUSTRY ANALYSIS AND TRENDS

Size and growth rate of industry:

Comprising the current and future trends defining the dynamics of this industry vertical Li-Fi market will exhibit massive growth over the coming six years, driven by its increasing demand across electromagnetic sensitive areas such as hospitals, nuclear power plants, and aircraft cabin. Light fidelity (Li-Fi) industry has gained high popularity in the global business space over the recent years, driven by its growing preference over traditional technologies on account of its favorable features such as energy efficiency, directional lighting, high-speed data transfer, and intrinsic security.

Industry maturity

IT IS AT STARTUP STAGE

- At the start-up stage, customer demand is limited due to unfamiliarity with the new product's features and performance. Distribution channels are still underdeveloped, so there are very few product supply and promotional activities. There are also lack of complementary products which add value to the customers, limiting the profitability of the new product.
- Companies at the start-up stage are likely to generate zero or very low revenue and experience negative cash flows and profits due to large amount of capital initially invested in technology, equipment and other fixed costs.
- Velmenni company is working to do their start up on lifi in India

Sensitivity to economic cycle

- Technology involves visible light instead of radio waves to reduce the negative impact on population. Moreover, it provides various features such as massive bandwidth, availability, energy efficiency and security which offers solution to increased data rates and spectrum crisis which will enhance the Li-Fi market in giving stable internet services.
- Li-Fi has the advantage of being useful in electromagnetic sensitive areas such as in aircraft cabins, hospitals and nuclear power plants without causing electromagnetic interference.[i]Both Wi-Fi and Li-Fi transmit data over the electromagnetic spectrum but whereas Wi-Fi utilizes radio waves, Li-Fi uses visible light, Ultraviolet and Infrared. While the US Federal Communications Commission has warned of a potential spectrum crisis because Wi-Fi is close to full capacity, Li-Fi has almost no limitations on capacity.

Seasonal factors

The business is not seasonal, in all the seasons the business is of same rate. But the quality of data transmission is poor in rainy season or when the weather is windy as compared to normal weather

Technological factors

- Technology involves visible light instead of radio waves to reduce the negative impact on population. Moreover, it provides various features such as massive bandwidth, availability, energy efficiency and security which offers solution to increased data rates and spectrum crisis which will enhance the Li-Fi market in giving stable internet services.

- Integration of technology with solar panels will create self-powered receivers opening the routes for backhaul, rural broadband, Internet of Things and low cost beacons in the Li-Fi market. In addition, intrinsically safe environments which cannot implement Wi-Fi will support the nascent technology.

Regulations and certificate

802.11ah

- Also known as Wi-Fi HaLow, 802.11ah defines operation of license-exempt networks in frequency bands below 1GHz (typically the 900 MHz band), excluding the TV White Space bands. In the U.S., this includes 908-928MHz, with varying frequencies in other countries. The purpose of 802.11ah is to create extended-range Wi-Fi networks that go beyond typical networks in the 2.4GHz and 5GHz space (remember, lower frequency means longer range), with data speeds up to 347Mbps.

802.11ad

- Approved in December 2012, 802.11ad is very fast - it can provide up to 6.7Gbps of data rate across the 60 GHz frequency, but that comes at a cost of distance – you achieve this only if your client device is situated within 3.3 meters (only 11 feet) of the access point.

Supply and distribution

How lifi is transmitted?

Li-Fi uses visible light communication (VLC) and near-infrared communication (IRC) to **transmit** data. Transceivers consist of both a receiver and a transmitter able to modulate or demodulate data using a process signal module. Data must be converted from electrical to optical signals in order to **transmit**.

How lifi is received?

LiFi allows for data to be transmitted by modulating the intensity of light, which is then **received** by a photo-sensitive detector. ... The way **LiFi** works is simple but powerful. When a constant current is applied to an LED light bulb, a constant stream of photons are emitted from the bulb which is seen as illumination.

Trends in industry

- Technological advancements to be a popular trend
- VLNComm (U.S) has recently developed the industry's fastest, most affordable and most innovative Li-Fi LED lighting panel. The LumiNex panel is capable of 108Mbps download speeds and the coverage is 516 square feet.
- This revolutionary development portrays the capabilities of Li-Fi in the form of technological advancements. The evolution in technology enables the users to appreciate the complementary nature of Li-Fi in various applications.

Global industry concerns

- Global Li-Fi market is growing at a significant rate throughout the forecast period. The key factors contributory to the expansion of the increasing demand in numerous end-user industries like health care, region and defense industries. additionally, technological advancement like speed over presently prevailing Wi-Fi technology, rising RF spectrum crunch by advancement in IoT and growing uses of the diode lighting system any contribute to the expansion of the market. Moreover, technical problems like interference and vary, and also the high price of system and installation are the factors that function market barriers. Moreover, sensible diode lighting for industrial, business and residential area produce a chance for the market growth.

(IV) TARGET MARKET

Demographics/ Geographic

- India is the country of Villages with 649481 villages.
- Over 43,000 inhabited villages in India do not have mobile phone services, with Odisha accounting for the highest number of such villages at 9,940, Parliament was informed today.
- No. of Indian consumers who purchased something online in 2018: 120 Million
- No. of Indian consumers who are expected to purchase something online in 2020: 175 Million
- Indian e-commerce Industry in 2017: $38.5 Billion
- Indian e-commerce Industry is expected to grow by 2026: $200 Billion
- The number of internet users in India is expected to reach 500 million by June 2018, said a report by the Internet and Mobile Association of India (IAMAI)
- If you have a four-member family (especially with teenagers), you are likely to own at least five Internet connections – a broadband linked to your home computer and four 3G plans on your family-owned smartphones
- India has all the weathers and almost all kinds of terrains

Lifestyle and psychographic

- Only 30% of internet users in India are women
- But more and more women are becoming independent and prone to use internet services.
- India is a young country with every 10th teen using internet services.
- Digital India brought rural India under Internet umbrella
- Jio revolutionised how Indians use internet services
- Urban population depending on internet in all aspects of life.
- Still lack of jobs and infrastructure.
- India now no. 1 in data consumption compared with 155th before Jio launch
- Enhanced user base across all key social media platforms; Facebook, YouTube with an estimated 70 m additions in the Ist year of Jio's launch

Purchasing pattern

- The current youth market is characterized as tech-savvy, variety seekers generation.
- Digital is influencing more and more Indians' shopping activities.
- I need it now is the new anthem.
- Almost 70% of respondents said that they are strongly influenced by ideas and information they've gleaned through digital channels prior to purchase
- Only 5% of purchases, accounting for 16% of value, are made after consumers have followed a mixed pathway, using online and offline touch points. The purely offline pathway remains dominant, accounting for 78% of purchases and 58% of value.
- **Rural population still unaware of online pathways.**

Target audience

- Our customers can be divided into two groups.
- The first group is familiar with the Internet and desires a convenient and affordable way to access the Internet away from home and their offices.
- The second group is not familiar with the Internet, yet, and is just waiting for the right opportunity to enter the online community.
- Net's target market includes people between the ages of 18 and 60
- For businesses and organizations that require the next level of Internet connectivity.

- For areas where radio frequencies may interfere with equipment, such as in hospitals and factories, or where Wi-Fi signals are poor or can’t reach, such as underground places.
- LiFi can be used in high-security environments as it adds an extra layer of security as light cannot pass through solid walls and a line-of-sight to the light is needed to access the LiFi network.
- LiFi is safe for the human body, as it doesn’t generate an electromagnetic environment like other wireless systems. Hence it can be easily used in sensitive environments like schools and hospitals.
- For villages where Wi-Fi technology cannot reach
- For students and travelers on go.

COMPETITION

- Ojjo Corporation lies in hybrid competitive position of Differentiation and Focus Strategy.
- Due to its innovative architecture, it has both broad and narrow industry applications.

a) Market Profile

- Size: The Company has currently a strength, 500 employees worldwide working on online platforms. Its spread across 4 countries in Asia, i.e. India, Bangladesh, China and Sri Lanka.
- Competitors: The Company has a major competition with many global companies like PureLifi and OLedcomm.
- Stage of Growth – The Company is in its initial phase with a decent number of investors.

b) Competitive Analysis

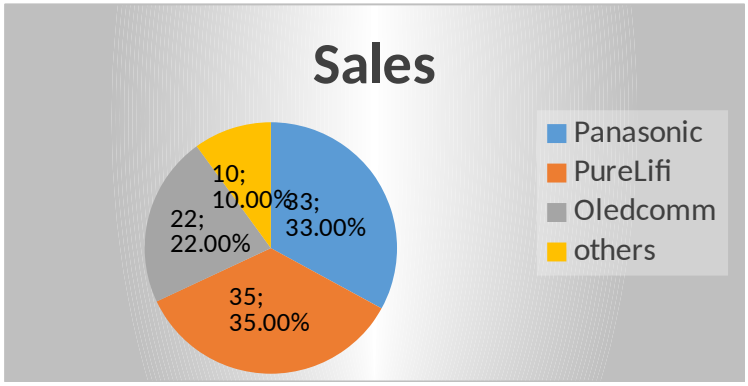
Strengths

- Our company is the First company to Launch LIFI based Commination on Internet in Asia.
- Our company has capabilities to open major Service centers across the globe to provide a better outreach to our customers.
- Our products provide faster data transmission rates.

Weakness

- Our products are a little costlier than the existing technologies.

Market Share Distribution



- Panasonic has the 2nd highest contribution to the sales, with impeccable earnings of 1.5 billion dollars in the past 3 years.
- OLedcomm corporations is the highest company for Lifi sales in Europe.
- PureLifi will slowly start to take steps to spread its business in USA too.
- Ojjo corporation has raised several funds for R&D and will come up faster processing devices with more reliability on security related issues.

Global Competition

Some of the Global competitors are: -

- PureLifi- Honkong based Company.
- OledComm- French Company.
- Luciom- Dutch Company.
- Panasonic- Japanese Company.
- General Electric- American Company.

Future Competition

- The current Global competitors always pose a threat to the growth of our company.
- Velmenni is a new Indian start up in 2012 that is currently based in New Delhi.

Recent growth of the company into the IT sector might pose a big threat to our company growth.

- Currently, Velmenni is not able to produce big results in the market but things might change within 5 years.

Barriers to Entry

The company has several barriers

- High product price.
- Well established competitors.
- Lesser Connections in IT sector.
- Low funds.
- Less customer outreaches.

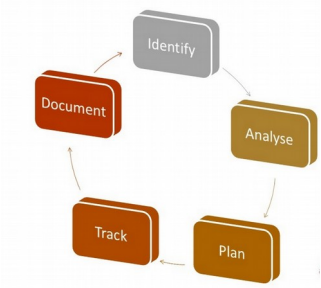
(VI) STRATEGIC POSITION AND RISK MANAGEMENT

Potential risk and management

- LiFi is a new and upcoming technology. At this stage, it is crucial for end users, as well as the ecosystem around those customers to get familiar with the technology and become aware of the numerous benefits of the solution. People might not get easily aware.
- We can set up a demo for LiFi at various places and can set up a lot of first (small) installs in various applications to stimulate and accelerate this as well.
- Connecting directly to the end user, to have access to the best insights on their needs and experiences, and consequently offer solutions that meet their specific requirements.
- We will target a wide and diverse set of user applications and industries as pilots for our LiFi systems, so that we can highlight its benefits across a wide spectrum of industries and applications.
- Some places in India with excessive sunlight may interfere.
- A new infrastructure might need to be established

Risk can be related to:

Raw materials, products
Machineries and plant design
Workplace activities and environment
Human interaction with equipment
Historic accidents and ill-health records can get repeated
Improper Environmental Health and safety guide



Methods of risk Assessment

There are plenty of risk assessment methods are available, but we can choose the severity and level of risks we are considering at workplace. Let's read one by one.

- **What if analysis**: it is the process in which what if questions are asked about what could go wrong and what could happen if anything go wrong.
- **Checklists**: It is the list of known hazards and threats by experienced person.
- **HAZOP**: It is process of thoroughly evaluating risks by professionals. It is very costly and time-consuming process.
- **Task Analysis**: It also known as Fault tree analysis. It is to identify all the things that could potentially cause a hazardous event.

- Failure mode and effect analysis (FMEA): this process begins with system for analysis and then looks at each element within a system and then it tries to predict what will happen to whole system if each element fails.

The global Li-Fi market can be segmented based on component, application, end-user, and geography. Based on component, the market can be bifurcated into LED, photo detector, microcontroller, and others. The LED segment dominates the global Li-Fi market. In terms of application, the Li-Fi market can be divided into smart lighting, mobile connectivity, disaster management, vehicle and traffic management, and others.

Boosting position in the Market

- A complete backdrop analysis, which includes an assessment of the parent market
- Important changes in market dynamics
- Market segmentation up to the second or third level
- Historical, current, and projected size of the market from the standpoint of both value and volume
- Reporting and evaluation of recent industry developments
- Market shares and strategies of key players
- Emerging niche segments and regional markets
- An objective assessment of the trajectory of the market
- Recommendations to companies for strengthening their foothold in the market

(VII) MARKETING REPORT ANALYSIS

Market Overview

The Li-Fi market is expected to register a CAGR of over 70.54 % during the forecast period, 2019 - 2024. Li-Fi is a disruptive technology that is poised to impact many industries. The estimations are based on the components used by the manufacturing companies of lifi products and their previous databases.

Selection of Targeted Audience:

In recent years, the youth of India became self-aware regarding the speed of the transfer of data. Thus the demand for the better quality transmission systems increased rapidly among the young Indian generation.

Basically targets young people of all standards and classes.

Efficient distribution of product outlets:

We focus on customer satisfaction and hence we are trying to make it available at stores and online platforms.

Affordable price range:

Considering the widespread use of LED bulbs inside buildings and large bandwidth of visible light, Li-Fi technology is much cheaper and more eco-friendly than Wi-Fi.

Marketing strategies and tactics:

Product Portfolio:

Consumers are usually attracted by the variety they come to see in their models. Considering that, we are trying to widen the range of products under the brand.

Innovation:

Our research and development team thrives to make the products more flawless by adding new technologies and attractive looks that draws the attention of more customers.

Pricing Strategy:

Due to the availability of already built manufacturing units, it is lot more easily for installation. Only the LED bulbs costs, so prices will be lower.

1. Created Branded Lifi

Customers will search for Lifi, see the network “Store X Lifi” and connect to the internet without having to engage with the company in any way.

To engage customers, we want to send them to a specific URL when they want to join your Lifi network. The URL should be branded for your company, reminding customers that you are giving them Lifi for free and making them feel more obligated to make a purchase.

2. Offer Digital Coupons through Lifi

Offering your visitors a digital coupon once they log on to your Lifi makes you stand out even more.

Once your customers login, you can redirect them to a special URL that gives them the chance to redeem a digital coupon. Only your visitors that use Lifi will receive the offer, so they will feel special and be more likely to buy from you. For example, maybe a visitor to your store is just browsing and doesn't plan on buying anything. But when they login to your lifi, they get a special offer for 20% off any purchase over rupees 500.

3. Gamify your Lifi Experience

Adding a game to lifi experience can dramatically increase visitor engagement. Maybe instead of offering every lifi user a coupon for 20% off their purchase, lifi users could play a game to determine what coupon they receive.

Online marketing strategy:

- Social media awareness
- Investing in web designing
- Conduct affiliate and associated programs
- E-mail marketing

Sales and structural team:

Lead Generation Team: researches potential prospects, gathers information around their needs and pain points, and then organize the data for the team to optimize prospecting for the department.

Sales Development Team: Qualifying the prospects could include calling the lead in addition to research. The Sales Development Team forwards only the qualified leads to the accounts team.

Account Executive Team: They take the qualified leads and pursue the sale. From product demonstrations, responding to prospects' questions and overcoming objections, these employees sign the account and pass them along to the on boarding crew.

Customer Success/Support Team: This part of the team specializes in helping customers settle into the new product or service. Their job is to keep customers happy, educate customers on the value the product or service provides, and uncover new opportunities to deepen the relationship

(VIII) OPERATIONS

Facilities

We at Ojjo Corporation limited, believe to provide our customers with better connectivity and faster data access rates. Our major objective is to provide a platform for users to communicate with data encrypted over light pulses. We have are customer care service open from 9:00 am to 10 pm .for any complaints of our customers. For any problem in data speed and in routers we have our line technician team .We have better warranty period of our devices. We target to provide our customers with access to all essential resources and make the newer technologies compatible with the existing ones. Our major products: lifi dongles, smart lifi bulb, lifi routers etc.

Manufacturing

We have are skilled workers for manufacturing of our following devices:

LIFI based routers: Optical fibres with low attenuation rates and compact receiver circuit to create a Graphical User Interface for real time processing.

Raw Material: We have certain contacts with different companies the will provide us with raw material for manufacturing.

Quality Check

- Attenuation rate
- Signal strength:
- Transmission speed:
- LIFI network standard:

Labor Requirements

- We have line technicians
- Engineers for manufacturing
- For customer care
- For sales and marketing
- For logistics

Equipment and furniture

Our company is of around 500 employees we need 500 to 700 chairs and tables, separate cabins for senior executives centralized ac system go down for keeping stocks of raw material and a manufacturing area.

Capacity utilization

All the routers and optical cables and other devices which are send by customers that are not working. We will be using its different components for manufacturing other materials after different quality check.

Inventory management We Have Our Logistics Team Which Take Care Of How Much Raw Material Is Used In Making, How Much Material Is Wasted .In Which Devices More Complaints Our Coming And In Which Area Sales Is More.

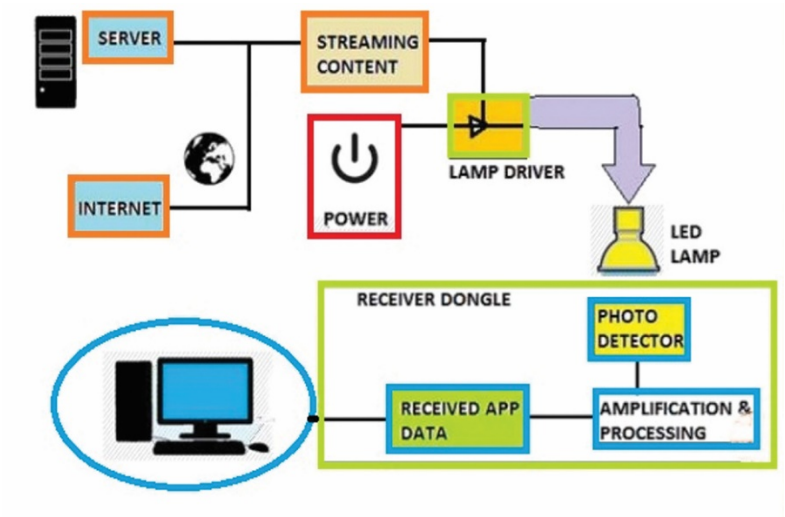
Research and development to remain competitive and meet customers' expectations, Ojjo Corporation lays great emphasis on the continuous up gradation of products and related technologies, and development of new products. Since till now this technology is new in India at present situation it is the latest technology.

(IX) TECHNOLOGY PLAN:

LiFi is high speed bidirectional networked and mobile communication of data using light. LiFi comprises of multiple light bulbs that form a wireless network.

When an electrical current is applied to a LED light bulb a stream of light (photons) is emitted from the bulb. LED bulbs are semiconductor devices, which means that the brightness of the light flowing through them can be changed at extremely high speeds. This allows us to send a signal by modulating the light at different rates. The signal can then be received by a detector which interprets the changes in light intensity (the signal) as data.

The intensity modulation cannot be seen by the human eye, and thus communication is just as seamless as other radio systems, allowing the users to be connected where there is LiFi enabled light. Using this technique, data can be transmitted from a LED light bulb at high speeds.



From the above description we can say that LiFi provides 1000X more bandwidth, more secure data transmission, data speed upto 1 Gbps and also help in an interference free communication. 90 percent less energy is consumed in comparison to Wi-Fi and other technologies for data transmission and receiving.

While LiFi brings significant advantages over incumbent wireless technologies, it is also designed to complement them both on the access side and when integrated into smart devices. In a bigger, smarter pipe In a mixed wireless network environment such as 5G, LiFi can offer by far the greatest bandwidth even as it co-exists with cellular and Wi-Fi. LiFi can add massive capacity and support a greater quality of service, for future 5G networks.

LiFi, cellular & Wi-Fi could even be used simultaneously for even greater bandwidth.

An integrated LiFi connectivity solution is made up of two main blocks:

1. Baseband, which converts data into a signal to be transmitted, and vice versa.
2. Optical front end (OFE), operates like a “light antenna” analogous to the radio chain in an RF system like cellular or Wi-Fi.

The optical front end is where the magic of LiFi happens. The OFE acts like a light antenna, capturing and transmitting light to turn light into data, and data into light.

LiFi can be integrating into smart devices by pairing a PureLifi OFE with an existing baseband. Gbps optical front end + industry 802.11 baseband device. For smart devices of the near future, the PureLifi Gbps OFE offers exceptional performance in a tiny package, ready to be paired with an 802.11 baseband. The OFE can operate with a standard 802.11 baseband, making integration much simpler.

(X)MANAGEMENT AND ORGANIZATION

Principle of organization

(1) **Consideration of Unity of Objectives**: The organization is a mechanism to achieve our goals. Objectives must be clearly defined for the entire enterprise, for each department and even for each position in the organization structure.
There must be unity of objective so that all efforts can be concentrated on the set goals.

(2) **Specialization:** Greatest output can be obtained when each person concentrates on doing the thing for which he/she is best qualified. Effective organization must include specialization. Precise division of work facilitates specialization.
However, each area of specialization must be inter-related to the total integrated system by means of co-ordination of all departments and activities.

3) **Coordination**: Coordination among people working on their particular specialization goes a long way for harmonious working of the organization.

(4) **Responsibility**: Authority should be equal to responsibility, i.e., each manager should have enough authority to accomplish the task. Similarly, the responsibility of the superior for the acts of his subordinate is absolute.

(6) **Efficiency**: The organisation structure should enable the enterprise to attain objectives with the lowest possible cost- money cost as well as human cost. An efficient organisation structure operates without wasting its scarce resources. It permits maximum use of its human resources and talents.

(7) **Unity of Command**: Each person should be accountable to a single superior- one superior or one boss and one subordinate, e.g., A is the boss of B. B is accountable to A. B is the boss of C; C is accountable to B. Thus, no one in the organisation should have more than one boss. It clarifies authority-responsibility relationship.
If an individual has to report to only one supervisor, there is a sense of personal responsibility to one person for results. Let a person receive orders from and be responsible to only one superior.

(8) **Communication**: A good communication subsystem is essential for smooth flow of information and understanding and for effective business performance. The line of authority offers a standing channel for downward and upward communication.

(9) **Departmentation**: It enables the division of activities into specialized groups to attain organizational objectives. A good organization involves precise and systematic distribution of work and responsibilities between managerial group and administrative group. Departmentation maintains balance and harmony in the working of the organisation.

Incentives

Financial incentives can be provided on an individual or group basis and satisfy the monetary and future security needs of individuals. The most commonly used financial incentives are:

(a) Pay and Allowances

Salary is the basic incentive for every employee to work efficiently for an organization. Salary includes basic pay, dearness allowance, house rent allowance, and similar other allowances. Under the salary system, employees are given increments in basic pay every year and also an increase in their

allowances from time-to-time. Sometimes these increments are based on the performance of the employee during the year.

(b) Bonus
it is a sum of money offered to an employee over and above the salary or wages as a reward for his good performance.

Apart from the monetary and future security needs, an individual also has psychological, social and emotional needs. Satisfying these needs also plays an important role in their motivation. Non-financial incentives focus mainly on the fulfillment of these needs and thus cannot be measured in terms of money.

(a) Status
With reference to an organization, status refers to the position in the hierarchy of the organizational chart. The level of authority, responsibility, recognition, salary, perks, etc. determine the status of an employee in the organization. A person at the top level management has more authority, responsibility, recognition and salary and vice-versa. Status satisfies the self-esteem and psychological needs of an individual and in turn, motivates him to work hard.

(b) Employee Participation
Involving the employees in decision making regarding the issues related to them such as canteen committees, work committees, etc. also helps in motivating them and inducing a sense of belongingness in them.

Key employee

The key employees are–

1) **Product manager**: The product manager is able to grasp and demonstrate why product matters to the customers, how it's manufactured and sold and how it could be tuned to be successful
2) **Customer support representative**: handles all product related questions and ensures that customers don't get lost in the fold. They also help in retaining customers and would build up the customer care function in the organisation.
3) **Financial analyst:** This person has a background in data analysis and can parse through data to see how the business can lessen its expenses and target customers more efficiently.
4) **Technical personnel**: he is directly involved in planning developing and effective maintenance of our product and forms the backbone of the organisation.

Consultants

The consultants would be needed for providing technical expertise by having a complete industry analysis and giving us ideas to improve our product and make it more user friendly. Consultants would also be required for marketing analysis so that we find out target market and get a better idea of marketing our product and create a supply and demand chain.

Since they would be studying organizational structures access efficiency of business and compare the skills of employees their recommendations could help us meet our long term objective.

Management

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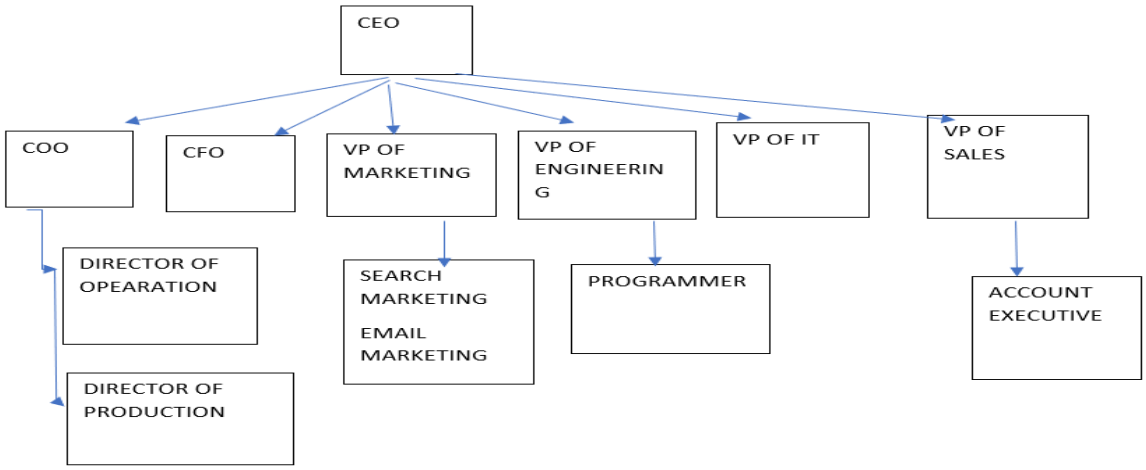


Management style

Democratic and participative

Management trusts the employees, but trusts them completely and not only seeks out their opinions and ideas, but they act on them. They work together to make decisions as a group and the staff is highly involved. As a result the employees feel valued, and show increased motivation and productivity. However a drawback to this style is that some employees do not want to be involved in decision making and can come to resent a manager with this style

Corporate culture

The benefits of a strong corporate culture are both intuitive and supported by social science. Our vision is to get the world to unite through this technology and embrace it.

For us customers are top priority and fulfilling their needs and serving them without looking at our situation holds the key for us. Being a startup we need to have a complete industrial analysis and market analysis done.

We should know out target market and their expectation. Having our core members who share a common interest we will try to have people who have the required skillset and share a common goal as us. We'll try to have a constant flow of communication without any interrupt to have a proper end to end communication which would enhance the working of our organisation.

(XI) SOCIAL RESPONSIBILITY AND SUSTAINABILITY

CSR refers to company's responsibility for its impact on society. This includes social, environmental and economic aspects.

As stipulated in the Section 135 of the Companies Act, companies having a net worth of INR 500 crore (Cr.) or more, a turnover of INR 1000 Cr. or more, or a net profit of INR 5 Cr. or more in a given financial year are required to spend 2 percent of their average net profit (of previous three years) on CSR.

Social responsibility goals and policy

- The company is fully committed to socio-economic growth and development of country's population
- Taking up programs that benefit communities around the area of operation of company which enhances the quality of life and economic well-being of local population with special attention to weaker section
- To generate a positive and socially responsible image of the company
- The company's CSR activities will be promoted under the brand name "Changing Lives with light" as punch line that is to change the current living standards of the downtrodden people and give them a better life.

Social responsibility certifications

- The standard ISO26000 and a certificate SA8000 suit the best for CSR company evaluation or development as they cover economic, social and environmental areas.

Community involvement

- Community involvement comprises: support for education; support for health; youth entrepreneurship; employee volunteerism; and sports sponsorship.
- We will endeavor to extend the benefit of its CSR activities within the socially and economically lesser privileged sections.

Activities

- Providing Lifi services in the rural areas (hospitals, common areas) with little to no digital connectivity by installing the required infrastructure and making them understand its utilizations (NGO).
- Installing Lifi services in public areas after understanding the density and requirement.
- Imparting quality education to rural and under-privileged children by bringing them under an umbrella program sponsored by the company providing free education to them till senior secondary level.
- Undertaking various drives for conservation of natural resources.
- Construction of washrooms in places where it is deficient.

Sustainability

Sustainability is an approach aiming to create long-term stakeholder value through the implementation of a business strategy that focuses on the ethical, social, environmental, cultural, and economic dimensions of doing business

(XII) DEVELOPMENT MILESTONES AND EXIT PLAN:

Long-term company goals:

i). **Increase Personal Wealth**: The common definition would be an increase in financial resources.

ii). **Expand into New Opportunities**: We have to start a business with the plan to grow and expand the business into new opportunities.

iii). **Go Public**: We may also need to recruit other individuals to work in the business who have extensive experience.

iv**). Lasting Legacy**: Starting a business may allow individuals to recruit family members into the company and employ them for running the business.

BUSINESS MILESTONES:

- ✓ Profitable Business Model
- ✓ First Repeat Client
- ✓ Realistic, Scalable Marketing Strategy
- ✓ Hire and Train a Solid Team
- ✓ Gain Authority in Your Industry
- ✓ Reach a Significant Number of Sales

RISK EVALUATION:

PRODUCT RISK While assessing the investment risk for Li-Fi start-up, the product or service related risk factors should always be your first consideration. We need to clarify the questions, like whether this product will take a strong foothold in the competitive market or not? And whether it is a reliable product for targeting your audiences?

TEAM WORK: Having the service or product risk factor fix in the business entity is just the starting point. The business entity still needs to deliver on its promises to the customers in order to maintain its market value.

FINANCIAL RISK: The third tip for assessing the risk factor before investing in your startup is that you need to maintain enough evidence stating that you have enough capital to reach the required milestones for raising more money.

MARKET RISK: As soon as you are done with assessing the revenue risk for your company, the next step is to analyse your market value. By knowing your customer's requirements and from where they are buying the products, this will help you in analysing the Competition in the market.

BUSINESS EVALUATION:

For every business entity is never cut and dry. For start-ups with little or no revenue, no market analyses and an uncertain future, assigning a valuation is even trickier. Valuing the business entity is challenging, but it is an essential part of the risk assessment in order to determine the share percentage among your co-workers in your business.

(XIII) FINANCIALS:

i. INCOME STATEMENT AND BALANCE SHEET

REVENUE GENERATED	5000 * 1000 = 5000000
SPONSORSHIP	4000000
MAINTAINANCE	1500000
GROSS PROFIT	**9500000**
COST OF GOODS	1000 * 1000 =1000000
GENERAL AND ADMINISTRATIVE EXPENSES	700000
OTHER EXPENSES (R & D)	2500000
TOTAL EXPENSES	**3200000**
NET EARNINGS	**5300000**

ii. CASH FLOW PROJECTIONS

BUYING OF PRODUCTS	**5000000**
SPONSORSHIP	4000000
MAINTAINANCE	1500000
TOTAL SOURCE OF CASH	10500000
INVENTORY	1000000
RENT	700000
MARKETING, ADVERTISING	1000000
OTHER EXPENSES (R & D)	2500000
TOTAL CASH GOING OUT	5200000
SALARY OF EMPLOYEES	4200000

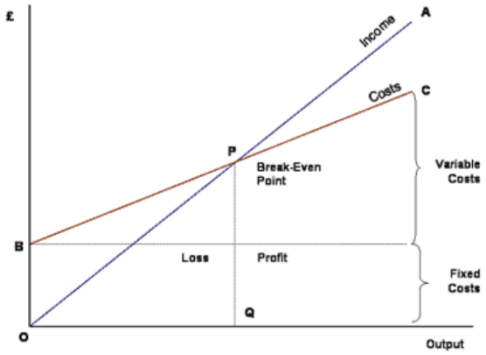
CASH AT END OF THE YEAR	1100000

iii. SOURCES AND USES OF FUNDS:

All the source of income, whether from the revenues generated from the product, or from sponsorships or maintenance charges, will be only used for the development of the product. Whatever profits will be generated shall be used for product development and marketing. Companies working in this domain and cash through hacks will be the main source of sponsorship.

iv. BREAK EVEN ANALYSIS:

This analysis is widely used by production management and accountants. t is based on categorising production costs between those which are "variable" (costs that change when the production output changes) and those that are "fixed" (costs not directly related to the volume of production).



For out start-up, fixed costs include the following:

- RENT AND RATES
- RESEARCH AND DEVELOPMENT
- MARKETING COSTS

Variable costs are those costs which vary directly with the level of output. They represent payment output-related inputs such as raw materials, direct labour, fuel and revenue-related costs such as commission.

THE PROTOTYPE