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İstanbul, Türkiye

BUSINESS REPORT
2021-22



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1. EXECUTIVE SUMMARY

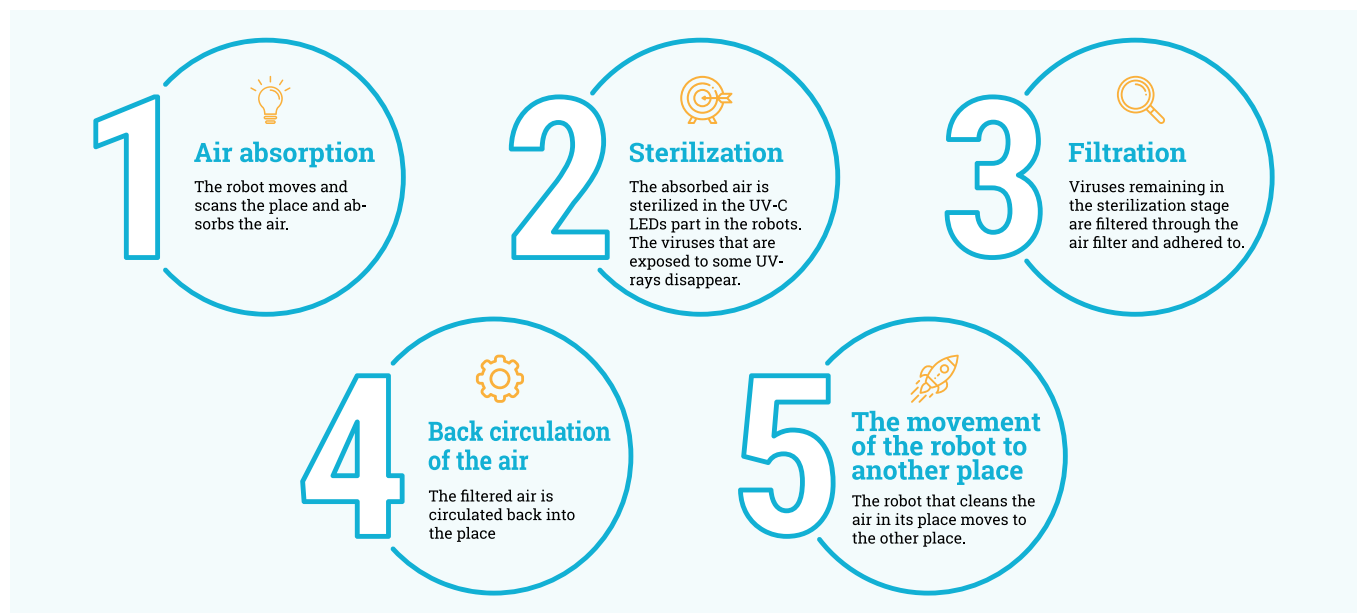
PROTECT YOUR CUSTOMERS, YOUR STAFF AND YOUR PATIENTS PROVIDING THEM A VIRUS AND BACTERIA FREE SPACES AND ADD VALUE TO THEIR LIVES!

ADAXy; is a company that aims to destroy viruses, bacterias and microorganisms in our living spaces and develops new generation technologies focused on health, informatics, robotics and software for the benefit of humanity.

MISSION: As ADAXy Company, to offer sustainable, competitive products, services and complete technological solutions that reduce carbon footprint with renewable energy sources for the benefit of humanity.

VISION: To add value to our country and the world by developing innovative, environmentally friendly, sustainable software and autonomous robotic systems that can facilitate the lives of people and other living things with new generation technologies.

PRODUCT: It is a device that maps its environment, moves autonomously, draws the air while moving, destroys viruses and airborne bacteria in the air with UV-C method, at the same time provides maximum filter with hepa filters, provides all its energy from solar energy, and minimizes the carbon footprint.



We set out to achieve goals 8,9, and 13 within the UN SDG. Our autonomous robot, which we have designed and produced in this direction, is in line with our SDG targets and we have proven the usability of AI-artificial

intelligence in new generation technologies. We work actively in all phases of software, design and production for our aim, which is to ensure that human health is a quality and sustainable life.

SUSTAINABLE
DEVELOPMENT
GOALS

8 DECENT WORK AND
ECONOMIC GROWTH



9 INDUSTRY, INNOVATION
AND INFRASTRUCTURE



13 CLIMATE
ACTION



2. COMPANY OVERVIEW

PURPOSE: To produce sustainable autonomous robots for the benefit of humanity by using AI-artificial intelligence techniques such as image processing, navigation and deep learning in robotic technologies.

HISTORY: In 2021; We started from the idea and designed the robot with the TÜBİTAK 2021 High School Students Research Projects. With the aim of producing projects and obtaining products for the TEKNOFEST 2021 Technology Contest for the Benefit of Humanity, we produced the robot with our work starting from this first idea, and we received the 2nd Prize in this competition. We applied for a patent for the product within the scope of Turkey with Patents Competition and the ongoing process resulted in incorporation within the scope of the 2021-22 High School Young Entrepreneurship Program. We established our ADAXY GENÇBİZZ JA Company in order to commercialize the product and see it in the field.

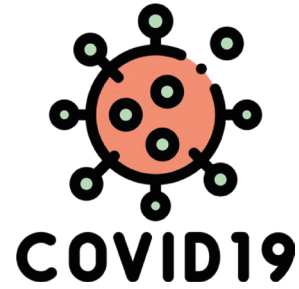
FORMATION OF THE CONCEPT: The emergence of the COVID-19 virus in 2021, the time taken for vaccine production, and the fact that life came to a standstill increased the importance of virus sterilization. With the principle that every human deserves clean air, the production process of our robot named COVAR-19 has started. UV-C is a proven technology for sterilizing environments and autonomous robots are the perfect method for the efficiency of these air purifiers, thanks to advanced navigation technologies.

THE CURRENT SITUATION: We produced our MVP product, which is the first prototype of our robot. We got it working. We did our first PoC Project. In order for our product to be mass produced, we determined advanced sensitivity and certification criteria with the customer experience and feedback we obtained from our PoC project. We continue our investment, sponsorship and partnership studies in order to start mass production. Our product is not only within the scope of this competition, we are working to ensure that it can be used in the real field.

STRATEGIES: We aim to create the final version of our product, for which we produced the prototype, for which

we have applied for a patent, and for which we are completing the patent acquisition, with the R&D company FROUMANN, where we carried out our POC project, and to start mass production. We will produce our product with 2 different models for mass production and use in the field. 1) Our autonomous robot model that will be used to clean the air continuously while there are people in closed and crowded environments. 2) Our autonomous model, which cleans the air of the environment after people leave in closed environments and prepares it for the next use. In this context, we will also complete the testing processes and certifications of critical values in order to obtain the necessary certifications.

TARGETS: To ensure sustainability, to develop products that work with renewable energy and to minimize the carbon footprint, to offer people a livable clean world.



PROBLEMS: Viruses that spread by droplets in the air affect human health and are transmitted from person to person very quickly.

- The SARS-COV2 virus has greatly affected people since the beginning of 2020 and 6.7 million people died.
- Airborne allergens, bioaerosols, various microorganisms and bacteria that cause pathogenic infection are dangerous for human health.
- Sterilization systems have become very important for closed environments.
- Contagiousness increases with viruses that spread by droplet spread in the air.

3. SOLUTION

An autonomous robot device has been designed to prevent the transmission of SARS-COV2 and all other viruses, which spread through airborne respiratory tract, from person to person in environments where people are common.

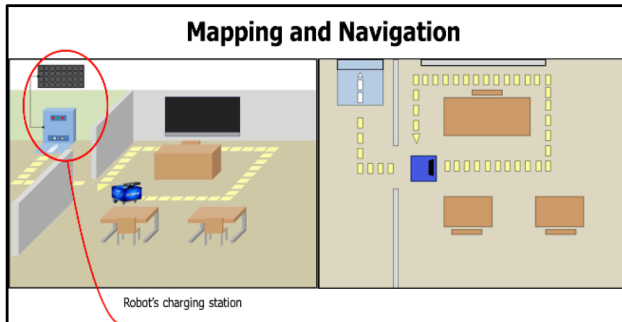
The first product of our company is "COVAR-19: Autonomous Robot System Performing Virus Sterilization with UV-C".



Working Stages of Our Robot:

The working system of the robot we designed can be explained in two stages.

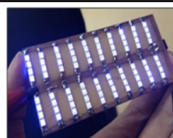
1. Mapping and Navigation: Mapping the Sterilized Environment and Moving the Robot:



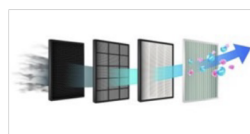
Using the ROS (The Robot Operating System) platform Melodic and Kinetic versions in the robot, the robot's driving, position and posture estimation, mapping of the environment and autonomous navigation are provided. With a differential drive (2 wheel drive) motion model in the robot, each wheel can receive different speed commands, so desired turns can be achieved. Using odometry for camera and real-time location detection on the robot, Rviz and gMapping methods were used for mapping for the determined region. In order to find direction in the study, thanks to the IR camera on the Kinect camera, depth information was obtained, and mapping and navigation were provided. The artificial intelligence-based application that will enable the robot to move has been developed in C++ and Phyton software languages and applied to the robot.

Sterilization of Air

- ✓ UV-C leds, emits high frequency rays and break down viruses in the environment.
- ✓ HEPA filters cleans up 99% of the particles in the air.



UV-C Leds



HEPA Filter System

2. Sterilization of Air: Vacuuming the Air of the Robot, Destroying the Virus with UV-C LEDs: It is planned to design the parts of the robot that will perform sterilization and to operate the sterilization mechanism.

Vacuuming the Air: In order to sterilize the air in the environment, our robot moves autonomously to the room we want to be free of viruses.

Our robot moves in the area taught by mapping, vacuums the air in the environment and directs it to the part where the UV-C LEDs are located. The destruction of viruses exposed to high-spectrum rays for sterilization has been proven in scientific articles. For this purpose, LED lamps that act as UV-C are used in our device. The sucked air is passed through the environment where these LEDs are located, and viruses are destroyed.

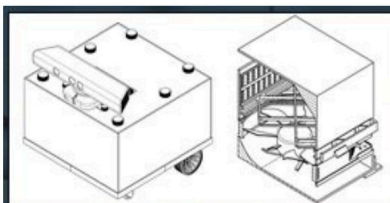
Filtering: Filtering process has been carried out both for viruses that can get rid of UV-C LEDs and in order to filter dust particles in the air and create a better quality air. Returning the Air to the Room: The robot, which absorbs and sterilizes the air in its environment, sends the air back to the room and moves to the other rooms where it will sterilize.

Techniques Used in Robot Design:

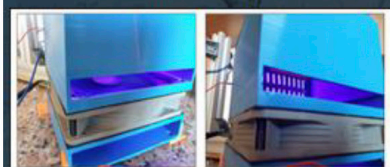
1. Image Processing: Mapping and Navigation
2. Hardware Preparation: Design and Assembly
3. Software Development: Arduino, C++ and Phyton
4. Integration: Integration of software with hardware and optimization

It consists of 4 basic methods and techniques used. Our autonomous robot, which we designed

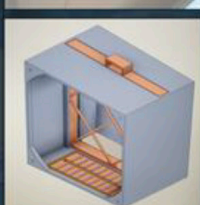
in our project, works with image processing methods. In particular, the area to be sterilized is determined and taught to the robot by machine learning methods for mapping and localization of the area to be sterilized. The aim in device design is to make the device easily available, low in cost, capable of going into production in a short time when mass production is made, and designed with the purpose of end-use, to be in a structure that anyone can easily pick up, use and carry.



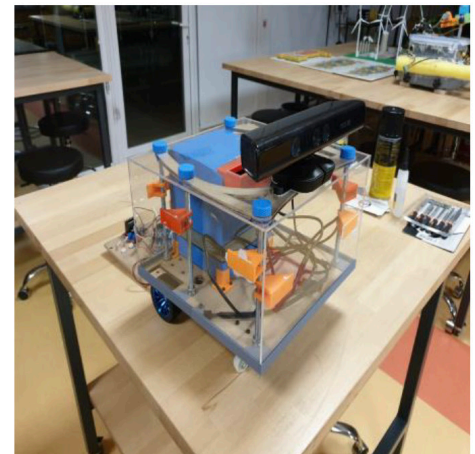
Sketch view of the robot



UV-C leds



HEPA filters



4. MARKET AND MARKETING STRATEGY

- Our market is quite large.
- There are various devices in categories such as air cleaner, disinfectant or cleaning robot in different segments.
- However, there are not enough autonomous robot systems that can move autonomously, have UV-C on the same root system, provide filtering and circulation, and can be charged with solar energy. We realized the gap in this segment and saw that the device we could produce with our feasibility studies could fill this gap.
- Especially with the COVID-19 Pandemic, the area of use has expanded due to the expansion of the market and protection from viruses and sensitivity to sterile air.
- Within Target Customers; there are closed areas such as schools, metro stations, shopping centers, hospitals, health centers, office areas, co-working places, kindergartens, fitness centers and nursing homes.
- There are 53,620 public schools and 13,500 private schools in our country. We consider schools as our primary market. Market Volume in Our Country: 67,000 Schools. Our primary goal is to reach 0.001% (67 units) of these schools in the first stage (one in a thousand), which will ensure the growth of our company.
- In the market especially; There are various manufacturers in different categories in the Disinfection and Autonomous Robot Market.
- By making a cooperation agreement with Froumann Professional Air Cleaning Systems Company, which is the strongest manufacturer in the market among these manufacturers, but which has a different segment, an agreement was made for 1 product with the sales price of the PoC (Proof Of Concept) product conceptual proof, and also for the improvement processes of the product. A temporary and phased cooperation agreement was also signed. With this contract, it has been agreed to guarantee the production and purchase of 100 robots for the real use of the product after all field suitability and fulfillment of obligations.
- Differences and superiorities of our product compared to its competitors in the domestic and international markets: Many existing products in the market use ventilation systems that are fixed to the environment they are in as sterilization method. These products are highly effective for small-scale environments, but cannot show the same performance for medium and large-scale environments such as metro stations, shopping malls.
- Our solution, our COVAR-19 robot, has a low production cost, is easy to use, takes up little space, has little to no environmental disturbance, and is powered by solar energy to reduce its carbon footprint for a sustainable world. This design-like robot is not yet in the market. We have made our patent application by adding additional features to this robot.



Competitors	HFS	Daikin	Froumann	Trotec	ADAXy
	\$ 400	\$ 750	\$ 900	\$ 1200	€ 1600
UV-C Leds					
HEPA Filters					
Portable					
Autonomous Movement					
Using Solar Energy					
Loud Noise					



5. OPERATIONS

- The systems in our school's STEM Laboratory were used for the production of our product.
- It is planned to create a dealer channel for both B2B and B2C delivery of products, and delivery, installation, after-installation service and maintenance services of the products will be provided through this dealer channel.
- As a dealer channel, negotiations were made with HTS Company, one of the leading service companies in the sector, and an agreement was reached.

- There is variability between our product initial production cost and our product mass production cost.
- Therefore, we will act with a price strategy for minimum cost, maximum quality and maximum income level. Margins will be determined with the final cost analysis with Froumann and HTS companies that we have made an agreement with on this issue.



6. SALES / PROMOTION

- Our sales model; Direct selling for our B2B customers and selling through dealers by creating an Indirect sales channel.
- We are planning to create an e-commerce and online sales channel through our website for our B2C customers.
- We are also planning a model for selling products, services and maintenance services, project design services and renting equipment through these channels.
- Our sales team held meetings with various customers.
- Our marketing team worked on creating product brochures, managing social media accounts, advertising the products, and publishing them in the news and media.
- Our sales target was primarily 1 unit and then 2 units of production with a preliminary contract. Our sales targets for 2022 were realized. With the cooperation agreement we made with the Froumann Company, a long-term contract was also signed.
- We planned to advertise on various social media platforms in order to be known/recognized in the industry and the market.
- We were one of the 10 projects that made it to the finals among 365 projects in Bayer's 2021 High School Science Competition, and we made a presentation at DemoDay.
- We went to visit Acıbadem University Incubation Center. We explained our product. We learned the conditions of being in the Incubation Center. We met entrepreneurs.
- We aim to promote and sell our product and find sponsors and investors in centers such as Teknopark

Istanbul Cube Incubation.

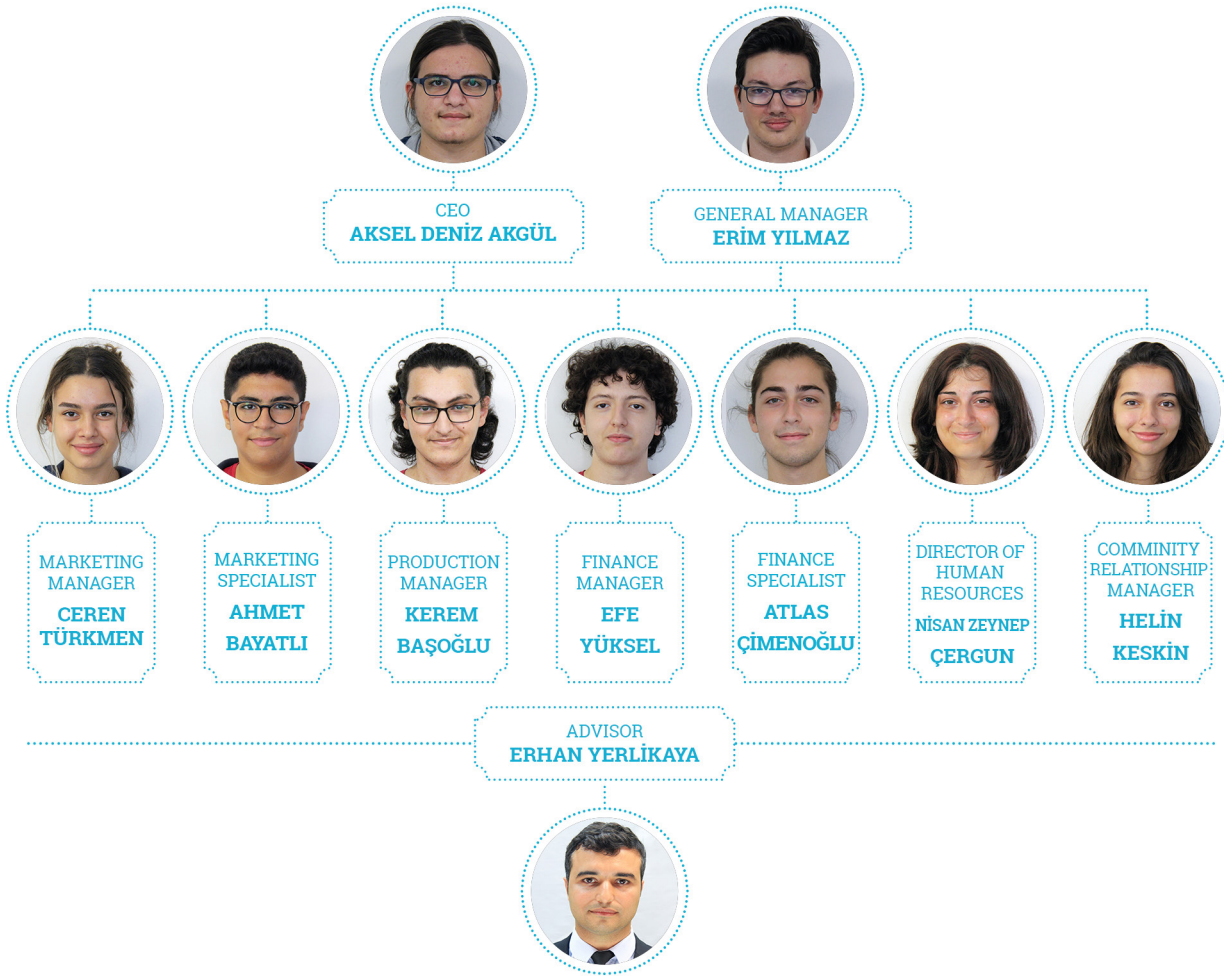
- We plan to create a Catalogue containing information about the product and inform people.
- We convinced ourselves, our team and our environment that the future of our company will be permanent.
- We believe that when we can put our product into mass production and reduce our costs, we will be able to continue as a commercial enterprise company (start-up) in the sector, with our product getting stronger with a patent.
- With this goal, we continue to search for investors or sponsors.
- Since our first prototype product attracted attention and appreciation, it is among our plans to perfect our product with engineering and R&D activities and to make it visually interesting and demanding.
- Even if this Gençbizz JA Entrepreneurship Program ends, we aim to apply to the Incubation Centers of Universities, to take part in TÜBİTAK-BİGG projects, to meet with producer sponsors and investors and to present our product for the benefit of humanity in order to make our ADAxy company permanent. We will continue to work towards this goal.
- After GEN-E 2022, with our ADAxy JA Company; We aim to apply to the Incubation Centers of universities, to take part in TÜBİTAK-BİGG projects, to meet with producer sponsors and investors, and to present our product for the benefit of humanity. We will continue to work and be permanent in line with this goal with our ADAxy company.

7. MANAGEMENT & TEAM

Our company consists of 9 people from 10th, 11th and 12th grade students with different abilities, with the aim of producing science, technology, social contribution and value for the benefit of humanity at high school level. Each of us has developed ourselves with the awareness of

our duties and responsibilities while making decisions. We have developed our missing knowledge through research and learning in this process. As a team in the decision-making processes, we took care of our product and tried to do the best.

ADAXY GENCBIZZ COMPANY ORGANIZATION CHART



We took care to have all strategic departments within a company and to have teammates who will work effectively in these departments.

- For example, being able to interact efficiently with each other in matters such as Management, Production-R&D, Technical, Finance-Financial Affairs, Human Resources, Sales, Marketing and complete tasks on time and as completely as possible, devoted to the company, energetic and We came together with our willing teammates.

- Our team is competent in design and software production. All designs and productions of our robot product were made by our team.

- There have been delays in our production process, such as 3D printing, production at school, material supply, waiting time for some parts. However, while we were

waiting for parts, we managed to manage the process with methods such as adding other parts and getting new prints.

- In this process, we tried to make up for our shortcomings with the support of our consultant teacher in using the STEM laboratory and directing us, and with the support of our mentor during the Gençbizz JA Competition.

- First of all, we came together with entrepreneurs and investors under the leadership of our advisor teachers for the team. We received training. We participated in entrepreneurial events in the sector. We came together online at weekly and monthly meetings to identify our missing topics, and for these issues, we came together both online and in our STEM laboratory at school and tried to make up for our educational deficiencies.



Establishing and managing a company, production processes, sales and business development, cost-benefit analysis, the importance of sales and business development as well as product production, networking, reaching influential people in the sector, getting to know and introducing oneself, establishing a future strategy,

friendship and business development. we learned to manage the team relationship and employee-personnel relationship, to distinguish these relationships from each other and to trust ourselves. We also learned how to create a personal page on professional social media such as LinkedIn.

8. BUSINESS PERFORMANCE AND PROFITABILITY

Our Revenue Model:

1. Sales through dealers by creating a dealer channel
2. Renting the device
3. Including maintenance services;

- It is planned to create a dealer channel for both B2B and B2C delivery of products, and delivery, installation, after-installation service and maintenance services of the products will be provided through this dealer channel.

- As a dealer channel, negotiations were made with HTS Company, one of the leading service companies in the sector, and an agreement was reached.

- There is variability between our product initial production cost and our product mass production cost.

- Therefore, we will act with a price strategy for minimum cost, maximum quality and maximum income level. Margins will be determined with the final cost analysis with Frouman and HTS companies that we have made an agreement with on this subject.

- We produced a prototype of our product (MVP: Minimum Viable Product) with our own resources.

- The systems in our school's STEM Laboratory were used for the production of our product.

Our Equity and Product Production Cost:

Cost of the Product	: 800 Euro
Sales Price of the Product:	1600 Euro
Unit Profit	: 800 Euro / Piece

In the mass production phase, it is aimed to make the production cost and sales unit price more suitable.

- We are planning to start mass production by using the financing we can get with investment.

- Negotiations with customers about pre-sales continue.

- We currently have 1 product sale and collection against Proforma Invoice.

- For the sale, service, maintenance and distribution of our COVAR-19 Autonomous Robot Product; We are in talks with 2 companies. We have made a Preliminary Contract with 1 company for the production of the product in quality standards, its development with R&D, mass production and distribution in the factory environment, and product installation, service and maintenance-support services with the other company.

- We made an agreement with HTS, which provides service throughout Turkey for both maintenance and distribution. We will get the logistics services from this company.

9. FINANCIALS

We built the prototype (MVP: Minimum Viable Product) with our own resources.

- We made a contract with FROUMANN, which is the leader in Air Cleaning Systems in Turkey.
- We divided the process into phases. At the end of each phase, the investment and R&D costs of the previous phase will be covered.
- If we can meet the requirements until the last phase, they gave the guarantee for the purchase and sale of the

100 products produced in the market.

- In this process, they will provide us with Production and R&D support in their Factory and Laboratories.
- We are planning to start mass production with the amount of financing we can get with the investment.
- Our Annual Profit/Loss Statment and Balance Sheet are as follows.

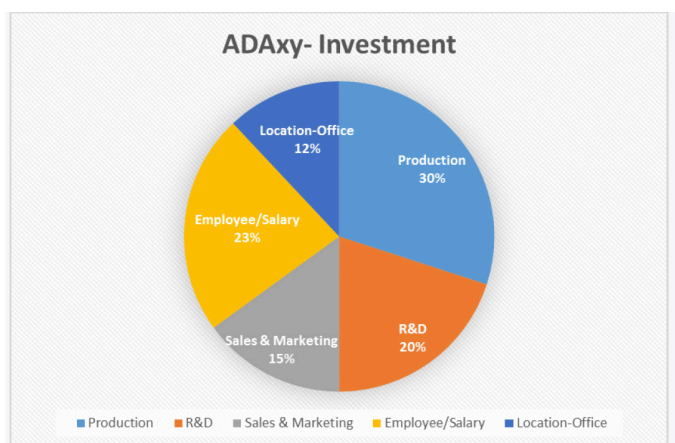
Profit & Loss Account	Euro
Sales	€ 1.600,00
Total Goods Purchased	€ 560,00
End of Period Stock	0,00
Gross Profit	€ 1.040,00
Salaries and Bonuses	€ 100,00
Stationary	€ 15,00
Rental/Purchase	€ 15,00
Other/Marketing etc.	€ 20,00
Total Cost	€ 150,00
Operating Profit	€ 890,00
Other Income (Sponsorship etc.)	€ 465,00
Net Profit (or Loss)	€ 1.355,00
Corporation Tax Payable	€ 253,00
Profit after Tax	€ 1.102,00
Profit Distribution	€ 1.102,00
Shareholders	€ 1.102,00
Donations	0,00
Balance	0,00

Balance Sheet			
ASSETS		EQUITY	
Current Assets			
Cash	€ 1.600,00	Cash Capital	€ 465,00
Receivables	0,00		
Stocks	0,00	Payable Equity	€ 2.000,00
Fixed Assets			
Tangible Fixed Assets			
Computer	€ -		
Machine	€ 400,00		
Office Furniture	€ -		
Intangible Assets			
Software	€ 465,00		
Total Assets	€ 2.465,00	Total Equity	€ 2.465,00
Balance	0,00	Balance	0,00

10. FUTURE POTENTIAL

Investment

- We are meeting with investors. We foresee that the seed investment will be finalized in 2-3 months.
- We are planning to make an investment tour of 100.000,00 EURO
- A long-term and gradual agreement was made with the Froumann Company, which is the strongest manufacturer in the market, but with a different segment, on the basis of providing us with qualified R&D, competence for mass production and P&D opportunities. At the same time, they expressed the opinion that the processes related to the patented and licensed production of our product will also be evaluated at the stage of progress. At the end of this process, it is planned to produce real products that will work on the field in a real environment, that can be efficient and that can be used effectively for human health.



Our Innovative Aspects: We are at a very close stage to obtaining the patent in our patent application, which we made in March 2021 within the scope of "Patent Türkiye".

- One of the unique aspects of COVAR-19 is the fan system in which the air is sterilized.

- UV-C rays disrupt the DNA of cells due to their structure and are very harmful to human health. For this reason, people should not be exposed to UV-C rays.

- In possible proximity situations, UV-C LEDs ensure that the air taken into the robot, with a fan that creates a vacuum, performs the sterilization process without emitting UV-C rays to the outside of the system, so that people are not harmed by UV-C rays.

- Covar-19 can apply Mapping, Localization and Navigation plans stably.

- We have the 2nd prize in the category of "Technology for the Benefit of Humanity" at Teknofest 2021. We used the money award we earned here as a resource to improve the product.

- We have also done the necessary infrastructure work for the features we will add for the future.

- We will add these features with our R&D studies.

- Increasing the number and quality of sensors on the robot.

- Making a smart charging station.

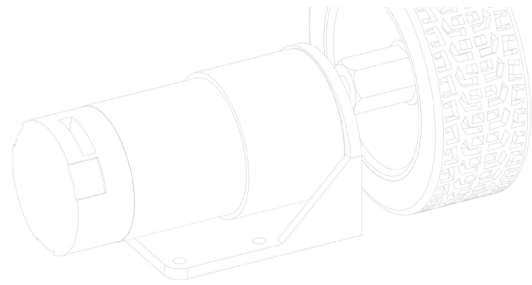
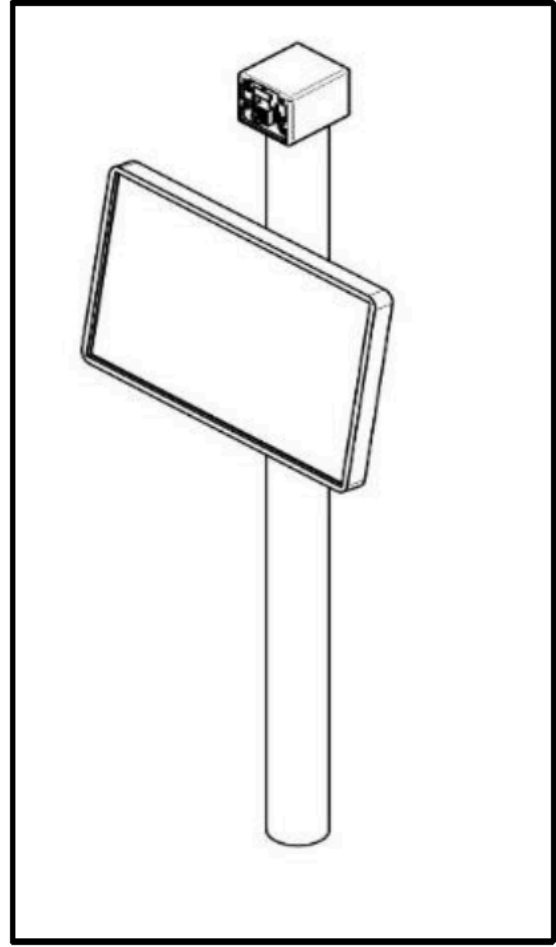
- Developing a more optimized navigation software.

- Mask detection and Person detection, face detection application.

- It will be used to detect masks in crowded places, to give a warning when it detects that there are people, and to perform UVC sterilization after detecting that there is no person.

- The reason I used a Kinect camera in this project is because the cost of the Kinect camera is lower.

- In case of mass production, Lidar sensor can be added to the robot in mapping.



Many thanks to Froumann for supporting us.

Froumann

Professional Air Purification Systems

C VAR-19

COVID ARTIFICIAL ROBOT




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