

Please note - The titles used in this document provide a clear structure to your business plan. You may choose to make minor changes to suit your particular situation.

Name: InvestigatoRobot

Business Plan for: INNOCENS

(Please use this template in conjunction with the guide [Prepare a business plan](#), where you will find information about how to use your business plan as well as [instructions on how to use this template](#))

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Executive summary

1 Executive summary (We suggest you complete this section after you have completed the other sections of the Business Plan.)

Write 1 sentence for each section

We offer a robot for investigation of pipes. The InvistigatoRobot is a automatic and self-propelled device able to move independently along a three-dimensional pipe lines. It is aimed at finding solutions for the following global technological challenges:

1. Exploration, study or inspection of spaces with unknown topology:
2. Movement on surfaces with unknown morphology.
3. Exploration of confined spaces (shafts, caves, catacombs, pipelines).

The novelty in our business idea is

1. Flexible design allowing movement in pipes of various sizes
2. Automated self-propelled device
3. Fast data storage and processing
4. Can accurately determine the location of pipeline damage and draw the trajectory in which it moves.

2 Business details

Company name:

SFI – Strong, Flexible Intellect

Address:

105 Teryan St. NPUA , ANEL
Yerevan 0009, RA

Telephone number:

0037455773974; 0037441643322

Legal status:

Pre-incubation / not registered

The business will: (Provide a brief description of what your business will do.)

Our business will provide integrated pipeline solutions in the form of robots for investigation in water, oil, gas, and sewage companies to help them to locate damages, congestions and erosions quickly and cheaply.

3 Key personnel

Details of owner(s):

Name: Andranik Voskanyan

Position/main responsibilities: chief engineering officer

Experience and knowledge of our industry: Has been working for two years on engineering solutions and watched extensive video material about the pipeline industry

Previous employment: customer service associate in a supermarket, teacher assistant in robotics class

Key skills brought to the business: analytical mindset, math aficionado, communication and presentation skills

Business experience and any training undertaken:

- customer service associate in supermarket
- took higher level math courses including on vector spaces, abstract algebra, advanced multivariate calculus

Academic/professional qualifications: Diploma Degree from Experimental High School Yerevan

Most recent salary £: 250 pounds per month or 150,000 DRAM as customer service associate in international supermarket chain

3 Key personnel

Details of owner(s):

Name: Arthur Hakobyan

Position/main responsibilities: chief programming and designing officer

Experience and knowledge of our industry: Working knowledge of robotics data science language

Previous employment: Teacher of robotics, Robotics Volunteer at TUMO

Key skills brought to the business: Solution oriented mindset

Business experience and any training undertaken: no business experience

Academic/professional qualifications: student of PhysMath School, Yerevan

Most recent salary £: 80,000 Dram or 135 pounds per month as a teacher

3 Key personnel

Details of owner(s):

Name: Yervand Terteryan

Position/main responsibilities: chief marketing officer

Experience and knowledge of our industry: extensive reading on pipelines industry as well as video immersion in pipeline damages

Previous employment: customer service provider in supermarket

Key skills brought to the business:

- multilingual as ability to communicate in Armenian, Russian, and English
- Deep understanding of math and physics

Business experience and any training undertaken: no business experience

Academic/professional qualifications: student of the Polytechnique High School, 3D modelling Flex, professional English lessons of American University of Armenia

Most recent salary £: 150,000 or 250 pounds

4 The business idea

Sum up your business idea:

We have a business idea for companies which use pipelines that routinely need to be investigated. These pipelines have to be investigated because they become rusted, cracked, or otherwise damaged. For example, water tubes consist of individual pipeline pieces which are stuck into one another and, sometimes, their connection may become loose causing the pipeline system to discharge water and pressure.

Our robot can go through the pipelines and identify these cracks or other damages which can save pipeline companies a lot of money because they can identify the exact location of the damage making reparation efficient.

Our robot is waterproof which enables him to work in pipelines filled with water. His legs are extendable by 200 degrees enabling him to travel through pipelines with different diameters. The robot is equipped with a camera, flash light, accelerometer and gyroscope. These sensors enable it to collect information in video, photo, sounds, as well as the coordinates to estimate its exact location in the pipeline. In case the tubes were made from metal the signals emitted will not reach our associated application on the computer, laptop or phone, so we had to come up with a different solution. Our robot has a 64 Gb memory card on which it can save the information. After evaluating the memory card, the operator can determine where the pipeline is clogged or damaged. Our solution promises to be a cost-effective solution compared to conventional ones.

If the charge will be lower than 50% it will return to the starting position or point of insertion

5 Business goals

What do you want to achieve in your first year of business? (Use as many fields as is applicable and add more if you need to.)

- We want to update prototype and enable it to predict and draw his trajectory. This information will be send to attached device (PC, smart phone or laptop)
- We want to partnership with companies using pipelines in Armenia
- We want to sell our first robot after half year
- We want to get financing
- We want to develop the robot in different sizes
- Right now our robot has an Arduino processor, in the improved version it should have a better processor, for example, the STM processor

Where do you see your business in 3-5 years' time?

- We want to be in the world market for investigative pipeline robots
- We will build stronger partnerships
- We will increase the robot price from \$2,500 - \$5,000
- We will employ a large and cheap workforce to make around 100-200 robots per year
- Our office and production site will be located in Engineering City, Bagrevand, Armenia
- We will have around 15 employees
- We will make one robot in around 3 days
- We will employ a designer in our team to enhance the appearance of our robot
- We will have a website as well as Instagram, Facebook, VK, and Twitter profiles.
- At least 1,000,000 people will be aware of our brand
- We will open branch offices in other countries

6 What the business does

Product/service	Features	Benefits
<ul style="list-style-type: none"> robot 	<ul style="list-style-type: none"> unique design 	<ul style="list-style-type: none"> can move through 3D labyrinth of pipelines with different diameters
	<ul style="list-style-type: none"> camera 	<ul style="list-style-type: none"> shoot video with sound or photo
	<ul style="list-style-type: none"> Flash light 	<ul style="list-style-type: none"> Light the way
	<ul style="list-style-type: none"> accelerometer and gyroscope 	<ul style="list-style-type: none"> calculated the speed and acceleration and by the help of that we can know the robots coordinates
	<ul style="list-style-type: none"> Touch sensor 	<ul style="list-style-type: none"> If there was a dead end by with the help of touch sensor the robot will understand it and go with another way
	<ul style="list-style-type: none"> We have 2x 2500 mAh battery with connected sequential connection with 7.4V and 1x 2500 3.7 V battery 	<ul style="list-style-type: none"> By the help of them robot's motors and brain can work around 4 hours

We sell robots to pipeline companies.

7 What makes the business different

Your product/service is unique or different compared with the competition because: (Use as many fields as is applicable and add more if you need to.)

- Robot can work in pipelines with arbitrary 3D distribution
- Robot can work in tubes with different diameters
- Our robot works autonomously meaning it does not need the help of operator
- Our robot is powered by a battery, so it does not need a cable like which many other commercial robots need
- It can give us information via a WiFi router
- Our robot is comparably cheap

8 Legal requirements (including regulations and licences particular to your business)

The legal and insurance requirements that apply in your business are: (Use as many fields as is applicable and add more if you need to.)

1. We do not need specific licences to build our robots. We have called the MINISTRY OF ENERGY INFRASTRUCTURES AND NATURAL RESOURCES OF THE REPUBLIC OF ARMENIA and they mention that they are not aware of any specific regulations regarding our robot
2. we want to copyright (IP) the design of our robot because it gives him a chance to go through the pipeline with any diameter: extendable legs (IP)
3. To get insurance, we will need to get business permission in the form of LLC which is for free and takes three simple steps in Armenia.

You will meet your legal and insurance requirements by: (Use as many fields as is applicable and add more if you need to.)

1. Meet with the government and discuss their specific requirements to be very sure.
2. Meet with other entrepreneurs in the Armenian community to learn how they tackled their legal responsibility
3. Will go to various insurance companies learn about their products and how they may apply to our company

9 Market research

Trends in your chosen market are: (Use as many fields as is applicable and add more if you need to.)

1. We are in the right business as, for example, European pipelines will need 6 billion EUR over the next 10 years investments for maintenance
2. According to Zion Market, global in-pipe inspection robots market worth over \$2,450 million by 2026 – that's exactly our market
3. There are over 2 million km of gas pipelines

How you know this: (Use as many fields as is applicable and add more if you need to.)

1. Internet resources
2. Customer Interview (Ovak)
3. Zion research
4. Friendsofnelson.com

10 Profiling customers

The customer groups you will be selling to are: (Use as many fields as is applicable and add more if you need to.)

1. The companies which transport gas
2. The companies which transport oil
3. Water and sewage pipelines maintaining companies
4. Armenian Water and Sewerage Closed Joint Stock Company
5. Sudip: a waste management company based in Armenia

Your customer research has shown what your customers want is: (Use as many fields as is applicable and add more if you need to.)

1. Fast and cheap investigation of their pipelines
2. Easy and convenient investigation of tubes
3. Possibility to find the exact position of problematic zones in pipelines without digging
4. Less human and more machine

How you know this: (Use as many fields as is applicable and add more if you need to.)

1. We discuss with companies (Ovak, Van, Raha)
2. We test robot in their pipes
3. We showed our robot in different international exhibitions and discussed the opportunities of our business with potential clients

Number of customers you expect to win in each group and what they might pay:
(Use as many fields as is applicable and add more rows if you need to.)

Group	Number of customers	Price they might pay per unit
Local water and sewage pipeline maintaining companies	1	\$ 2000
Local oil pipeline maintaining companies	2	\$ 2500
Local gas pipeline maintaining companies	1	\$ 2400
International water and sewage pipeline maintaining companies	1000	\$ 2400
International oil pipeline maintaining companies	20	\$ 5000
International gas pipeline maintaining companies	20	\$ 4000

11 Profiling competitors

Use as many fields as is applicable in the table below and add more rows if you need to.

Competitor name	Strengths	Weaknesses
<ul style="list-style-type: none"> YKndt 	<ul style="list-style-type: none"> Auto focus :100 times (10x optical, 12x digital) Light source: 4 high brightness LEDS Working temperature: -22-55 deg. Waterproof level: IP68 	<ul style="list-style-type: none"> Weight: 2.2KG Auto level: manual Diameter: 90mm length: 165mm Working with cable High price (15000 \$)
<ul style="list-style-type: none"> Waterproof pipe climber 	<ul style="list-style-type: none"> airtight protection, can work under 10 m water 4 wheel drive, max speed can reach 30 m/min 12 high light LED light source, max power 90W, illumination intensity 1500 cd 	<ul style="list-style-type: none"> Pipeline diameter: 10~30cm Working temperature: 25~50°C As the 4 wheels drive 30m/min the battery will be empty very fast High price (9000\$) Working by the help of operator
<ul style="list-style-type: none"> HRG 	<ul style="list-style-type: none"> Small size Light weight Can control tilt of the head USB and other input and output interfaces Provide high-quality light source, to achieve a clear image effect 	<ul style="list-style-type: none"> Working in pipelines which constant diameter Working by the help of cable Working by the help of operator High price (20000\$)

How you can improve on their offer and/or price(s): (Use as many fields as is applicable and add more if you need to.)

1. *Waterproof Pipe Climber* works with cable while ours does not need a cable
2. *Waterproof Pipe Climber* works with the help of operator while our works autonomously
3. *YKndt* works with cable while ours works without cable
4. *YKndt* is very heavy while ours is very light
5. *HRG* works in pipelines with constant diameter while ours can go through the pipelines with variable diameters.
6. *HRG* works with cable while ours will work without a cable

12 Managing market risks

Write down the risks you have identified: (Use as many fields as is applicable and add more if you need to.)

1. The companies (for example gas, oil, water, sewage pipeline maintaining companies) might ask for some specific standards for our robot to meet
2. Some customers might continue working with their current suppliers due to the established partnership and agreements

How will you manage these risks so that they become less of a threat: (Use as many fields as is applicable and add more if you need to.)

1. We will make the needed changes in our robot and technologies to meet all standards and regulations
2. We will actively work on customer acquisition and advertisement of our product. We will organize meetings with customers and demonstrations

13 Pricing

How you can calculate your prices: (Use as many fields as is applicable and add more if you need to.)

- Mechanical components \$ 350
- Electrical components \$ 150
- Robot assembly \$ 450
- Test \$ 50
- The contribution margin per robot 1000\$.
- Variable cost: 500\$
- Fixed cost: 2500\$

How your prices compare with the competition: (Use as many fields as is applicable in the table below and add more rows if you need to.)

Product/service	Your price(s)	Range of competitor prices (per unit)
SFI/ Waterproof pipe climber	2500 \$	9000 \$
SFI/ YKndt	2500 \$	15000 \$
SFI/ HRG	2500 \$	20000 \$

Reasons for the difference between your price(s) and your competitors' price(s):

- Because there are very few investigation devices in market, our competitors can sell their product with the high price
- one of the competitors uses x-ray cameras
- our unique design simplifies the assembly process and reduces the number of the components needed

14 Promotion and advertising

How and where will you promote your product/service? (Use as many fields as is applicable and add more if you need to.)

- TV commercial → Armenia TV, H1, and Shant
- We will take a part in many exhibitions
- We will organize face to face meeting with companies

Running the business

15 Staff

Use as many fields as is applicable in the table below and add more rows if you need to.

Role	Total cost	Necessary experience	Specialist skills and/or qualifications
<ul style="list-style-type: none"> • Engineer 	\$450	<ul style="list-style-type: none"> • No 	<ul style="list-style-type: none"> • Soldering • Electronic skills • Mechanical skills • Creative mind
<ul style="list-style-type: none"> • Designer 	\$320	<ul style="list-style-type: none"> • Yes, min. 6 months full time working experience in the field 	<ul style="list-style-type: none"> • Rhinoceros, AutoCAD • Adobe Photoshop • CorelDraw • Good mind • AutoCAD
<ul style="list-style-type: none"> • Marketer 	\$400	<ul style="list-style-type: none"> • Yes, min. 1 year full time working experience in the field 	<ul style="list-style-type: none"> • Good communication skills • English • Russian • Armenian • Graduated MS
<ul style="list-style-type: none"> • Programmer 	\$450	<ul style="list-style-type: none"> • Yes, min. 1 year full time working experience in the field 	<ul style="list-style-type: none"> • C++ • C# • JS • MatLab • English
<ul style="list-style-type: none"> • PR manager 	\$320	<ul style="list-style-type: none"> • Yes min 3 months full time working experience in the field 	<ul style="list-style-type: none"> • English • Russian • Armenian • Good communication skills

16 Premises

	Cost £
Renting area for work per month (in the future)	\$150
Working instruments (at start-up)	\$2000
Computers (3 pcs) (at start-up)	\$1500
Stuff salary per month (at start-up)	\$2390
3D printer (in the future)	\$6500
CNC (at start-up)	\$30000
Circuit Board Plotter	\$35000
TOTAL for 6 months	\$90240

17 Suppliers

Your key suppliers and their credit terms: (Use as many fields as is applicable and add more rows if you need to.)

Supplier	What you'll buy from them	Number of days' credit
TT motor	GM12 N30VA GM12 N30VA	• 0
Pamela Elizabeth	Camera WiFi 4K HD	• 0
Electronic component	L293D driver	• 0

We design all other components with 3D printer and aluminium crafting

18 Equipment

Use as many fields as is applicable and add more rows if you need to.

Clean up

Resource	When	How funded	Cost \$ per unit
<ul style="list-style-type: none">• 3D printer	<ul style="list-style-type: none">• in the future	<ul style="list-style-type: none">• Investment	\$6500
<ul style="list-style-type: none">• Working in instruments	<ul style="list-style-type: none">• at start-up:	<ul style="list-style-type: none">• Investment	\$2000
<ul style="list-style-type: none">• Computer*3	<ul style="list-style-type: none">• at start-up	<ul style="list-style-type: none">• Investment	\$1500
<ul style="list-style-type: none">• CNC	<ul style="list-style-type: none">• at start-up	<ul style="list-style-type: none">• From ANEL	\$30000
<ul style="list-style-type: none">• Circuit Board Plotter	<ul style="list-style-type: none">• in the future	<ul style="list-style-type: none">• From ANEL	\$35000
TOTAL:			\$75000

19 Managing operational risks

Use as many fields as is applicable and add more if you need to.

Risk	Solution
Staff <ul style="list-style-type: none">• Someone from SFI can steal our know-how	<ul style="list-style-type: none">• The know-how of our technology will be opened only to the high level persons from SFI
Suppliers <ul style="list-style-type: none">• We will not find camera that we use• We will not find motor that we use	<ul style="list-style-type: none">• We will use another camera• We will use another motor

Finance

The finance section of this template is intended for business planning purposes only. If financial tables are to be used for any purpose other than internal financial management, we strongly recommend you consult an accountant or tax advisor.

Click on the links below to access a range of Microsoft Excel work sheets to input your figures, Microsoft Excel will automatically update the totals for you. (If you do not have access to Microsoft Excel you can save the files on to your PC. You can then use Open Source Software such as [Google Docs](#) or [OpenOffice](#) to access the information by uploading the files into this software. We have provided Open Document Format versions of the tables in this section as well.)

Please note that all tables can be customised and additional rows and categories can be added.

If you need to print out this business plan and the associated tables (once you have completed them) eg to show your accountant or your bank, place the tables behind the next pages in this template.

You can find [information about Microsoft Excel and accessibility on the Microsoft website](#).

20 Start-up costs

Calculate how much money you need before you start trading (This helps you to calculate the costs of starting your new business.)

[Download the start up costs table in Microsoft Excel format \(XLS, 44 KB\)](#)

[Download the start up costs table in Open Document format \(ODS, 17 KB\)](#)

Personal survival budget:

Estimated annual personal expenditure (This helps you work out the minimum amount you need to earn from your business in the first year and how much money you might need to borrow to start the business.)

[Download the personal survival budget table in Microsoft Excel format \(XLS, 44 KB\)](#)

[Download the personal survival budget table in Open Document format \(ODS, 18 KB\)](#)

21 Profit and loss forecast (Use the tabs within the Microsoft Excel work sheet to view the second year and third year forecast templates. The profit and loss forecast is more detailed at the start because you should have a clearer idea of your profit and loss expectations.)

Please note:

- Where the business holds and sells stock this cost should be included in direct costs. It is calculated as: opening stock + purchases - closing stock.
- If you are VAT registered all sales and costs records should be entered excluding VAT. If you are not VAT registered then you will need to include VAT in your costs where it is charged. For information about VAT, VAT threshold, VAT schemes and turnover threshold, please visit the HMRC website: [VAT rates, thresholds, fuel scale charges, exchange rates](#).

[Download the profit and loss forecast table in Microsoft Excel format \(XLS, 61 KB\)](#)

[Download the profit and loss forecast table in Open Document format \(ODS, 32 KB\)](#)

22 Sourcing finance

Total borrowing requirement for the business (This helps you to understand how much money you will need to find in order to close the gap between your start-up costs as well as the costs of operating before your business will make a profit, and the money that you have available to put into the business yourself.)

[Download the sourcing finance table in Microsoft Excel format \(XLS, 46 KB\)](#)

[Download the sourcing finance table in Open Document format \(ODS, 15 KB\)](#)

23 Managing financial risks (such as, sales are less than forecasted or start-up finance takes three months longer to obtain)

The risks that you have identified for your financial forecast are: (Use as many fields as is applicable and add more if you need to.)

1. Our costumers cannot pay us much as we calculated
2. As we sell our robot in dollars the dollar can be influence
3. The humanity can discover a new material for pipes and that pipes will not be broken
4. Taxes can grow up

How you will minimise their impact: (Use as many fields as is applicable and add more if you need to.)

1. For costumers who can't pay as much as we calculated we can make our robot with limited functionalities and sail it with cheaper cost
2. We will add a point that if the dollar will be influence they will pay as much as it will be before influence
3. It's cannot be broken but it can be clogged so they also will buy our product
4. If the taxes will grow up we will not have big profit

24 Cashflow forecast (Use the tabs within the Microsoft Excel work sheet to view the second 6 months and summary)

You only need to complete the VAT line in the cashflow forecast if you are VAT registered. For information about VAT, VAT threshold, VAT schemes and turnover threshold, please visit the HMRC website: [VAT rates, thresholds, fuel scale charges, exchange rates](#)

Please note that if you are VAT registered all sales and costs records should be entered excluding VAT. If you are not VAT registered then you will need to include VAT in your costs where it is charged.

[Download the cashflow forecast table in Microsoft Excel format \(XLS, 64 KB\)](#)

[Download the cashflow forecast table in Open Document format \(ODS, 34 KB\)](#)