

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: WOM

Business Plan for: development a device for automatic control of a manual/mechanical wheelchair

(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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Business plan contents

Executive summary.....	4
1 Executive summary.....	4
2 Business details.....	5
3 Key personnel.....	7
Vision.....	9
4 The business idea.....	9
5 Business goals.....	10
6 What the business does.....	11
7 What makes the business different.....	12
8 Legal requirements.....	13
Sales and marketing.....	14
9 Market research.....	14
10 Profiling customers.....	15
11 Profiling competitors.....	16
12 Managing market risks.....	18
13 Pricing.....	19
14 Promotion and advertising.....	20
Running the business.....	21
15 Staff.....	21
16 Premises.....	22
17 Suppliers.....	23
18 Equipment.....	24
19 Managing operational risks.....	25
Finance.....	26
20 Start-up costs.....	26
21 Profit and loss forecast.....	27
22 Sourcing finance.....	28
23 Managing financial risks.....	29

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

Wheelchair users

About 15% of the world's population has some form of disability. Of these, 2-4% of people experience significant difficulties in functioning.

The first WHO / World Bank World Disability Report, in its entirety, reviews evidence on the situation of persons with disabilities in the world.

In countries around the world, more than a billion people live with any form of disability; of these, nearly 200 million experience serious difficulties in functioning. In the years to come, disability will be a growing concern as its prevalence increases. Globally, people with disabilities show lower health outcomes, lower educational attainments, less economic activity, and higher poverty rates than non-disabled people. This is partly due to the fact that people with disabilities face barriers to their access to services that are familiar to many of us, such as healthcare, education, employment and transportation, as well as information.

Disability-related barriers exacerbate the social disability experienced by people with disabilities

There are several categories of people with disabilities who use wheelchairs. These are people who have a disability for health reasons and people who are undergoing rehabilitation. At the same time, due to psychophysiological features, they have an active life position and want to participate in the social life of society. They need a comfortable, easy-to-use wheelchair to move around. Nowadays there is a wide variety of wheelchairs. People with disabilities use manual or power/electric wheelchairs. Of course, every kind of these things has advantages and disadvantages.

More popular are electric wheelchairs, but they have a high price. The author of the business idea faced this problem when he was undergoing rehabilitation. Personal meetings with wheelchair users gave rise to the idea of help for them.

In this business plan, the production of a device for automating mechanical wheelchairs is considered. This device is a system, which is based on the Arduino microcontroller. Currently, attempts are being made to use Arduino to automate wheelchairs. However, they are all fragmented and there is no mass production. We are going to get a patent for a utility model, a Declaration of conformity. The results of marketing research have shown a high level of need for maneuverable wheelchairs, which can be controlled automatically or with the use of modern gadgets. We used our own survey data to conduct the research. Studies have identified target groups of consumers and their requirements for wheelchairs. The market for wheelchairs is represented by only two types: mechanical and electrical. As studies have shown, the main criterion for choosing a stroller is the price. Electric wheelchair is 2 times more expensive than

mechanical, Despite the fact that in all countries of the world there is financial assistance to people with disabilities when buying a wheelchair, not all of them can buy an electric wheelchair. Thus, the demand for wheelchairs with automatic control will be high, although there are certain risks associated with rising prices for system components. In addition, it is possible to change the exchange rate.

The estimated cost of this product is 213 euros, which is much lower than the price of electric strollers. If our device is installed on a conventional mechanical stroller, the price will be 375 euros. At the initial stage of the sale will be carried out through organizations of disabled people and online. For the launch, we will not take loans; we will use our own funds. To start a business you need 7000 euros.

This will be their own funds; another option is to participate in competitions for a grant.

2 Business details

Company name:

T&A

Address:

Kazakhstan, Zhambyl region, Taraz, Tole bi street 60

Telephone number:

+7 7262 45 22 35

+7 7262 45 73 92

Legal status:

Start-up

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

The business is to install a specialized WOM device. This system is completely removable and

converts a simple manual/ mechanical wheelchair into automatically. Our customers are two categories of people: people with disabilities and people who are currently undergoing rehabilitation period, but have an active life position.

This device can be easily installed on any manual/mechanical wheelchair. At the same time having a lightweight design, the device does not make the weight of the stroller large, allowing it to be easily transported. It is mobile. A special advantage of the device is a reasonable price for most categories of consumers. Modern IT-technologies used in the creation of this device make it easy to control with a convenient joystick, which is easy to manage people of different ages and different mental and physical condition. The microcontroller Arduino allows you to expand the possibilities for ease of use through control by phone. Also for consumers with poor response inserted IR sensor to avoid obstacles. Sufficient power of the battery and wheels allows it to be used for a long time.

3 Key personnel

Details of owner(s):

Name: Adel Krakhmaleva

Position/main responsibilities: student

Experience and knowledge of our industry: none

Previous employment: none

Key skills brought to the business: the ability to learn from your own mistakes, skill of effective communication with other people, the ability to see the full picture of the action, not focus on specific details

Business experience and any training undertaken: training on creating and promoting the start-up

Academic/professional qualifications: student

Most recent salary £: 46,7

Other key personnel (including shareholders):

Name(s): Igor Titov

Position/main responsibilities: student

Experience and knowledge of our industry: none

Previous employment: none

Key skills brought to the business: none

Business experience and any training undertaken: training on creating and promoting the start-up

Academic/professional qualifications: student

Most recent salary/salaries £: 46,7

4 The business idea

Sum up your business idea:

The business is to install a specialized WOM system. This system is completely removable and converts a simple manual wheelchair into an electric one.

The peculiarity of this system is the author's software, which is written in the programming language Arduino, "based on Wiring". In addition, there are several ways to control a wheelchair: a joystick and a mobile application. The joystick is mounted in the handle of the wheelchair panel, which allows you to control it with gestures. Also in the WOM system includes the function of "diffraction obstacles."

This function is possible thanks to the infrared sensor. To do this, an IR sensor is installed in the system. It is necessary for the wheelchair to be "smart" and independently go around obstacles in its way. When determining an obstacle at a distance of 50 cm, the wheelchair will stop on its own and make a comparative analysis of the best way.

The main advantage is that the WOM system is easy to install and use. In addition, a wheelchair equipped with such a system is very easy to transport: it is possible to transport both by car and by train or plane. This is a big difference from simple electric strollers, whose weight reaches 60 kg, which makes it not very profitable to transport.

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.)

For example - business goals could include turnover of £100,000 or trading at breakeven.

- Sales at breakeven
- To be competitive
- Monthly sales of the product in 35-40 units

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

Over the past 5 years, the number of disabled people in Kazakhstan increased by 7.5% to 674.2 thousand people... In the next three to five years, we plan to increase production and open our branches in such large cities as Shymkent, Almaty , Nursultan. In addition, the sales for the CIS countries.

It is planned to improve the system more and more, through a survey and a personal expertise to identify the customer's preferences.

6 What the business does

Product/service	Features	Benefits
<ul style="list-style-type: none"> • WOM system 	<ul style="list-style-type: none"> • Joystick 	<ul style="list-style-type: none"> • Low cost
	<ul style="list-style-type: none"> • Arduino UNO (with special program) 	<ul style="list-style-type: none"> • lung
	<ul style="list-style-type: none"> • IR sensor 	<ul style="list-style-type: none"> • ease of transportation
	<ul style="list-style-type: none"> • two wheels 	<ul style="list-style-type: none"> • easy access of spare parts
	<ul style="list-style-type: none"> • special battery 	<ul style="list-style-type: none"> • easy to use
	<ul style="list-style-type: none"> • mobile application 	<ul style="list-style-type: none"> • independence from maintainer

7 What makes the business different

Your product/service is unique or different compared with the competition because:

- The peculiarity of this system is the author's program, which is written in the programming language Arduino, "based on Wiring"
- The presence of an application for the phone with which you can control a wheelchair. This application is written in Java. It s the author's product.
- The WOM system weighs about 7 kg, the weight of a simple manual wheelchair is about 13 kg. The total weight of a wheelchair with the WOM system is about 20 kg, while the weight of an electric wheelchair is about 60 kg, which is much lighter.
- Wheelchair equipped with a system is easy to carry in trains, airplanes and in the trunks of cars.
- Equipped with a system that allows you to bend around various obstacles automatically, without additional difficulties.
- Maintaining the advantages of a mechanical wheelchair. If the charge is low, you can use to manual control.

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. Patent for individual entrepreneurial activity
2. Patent for invention (utility model)
3. Certificate or declaration of conformity with EAEU technical regulations

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

1. To obtain a patent for individual entrepreneurial activity, you should register as an individual entrepreneur. Registration is possible at the tax office within 1 day without fees. After registration, you should choose a mode of operation, the best option is a special tax regime based on a patent. The cost of the patent is: 2% of the estimated income, 10% - pension contributions from the minimum wage, 3.5% - social contributions.
2. To obtain a patent for an invention or utility model, you should apply a request to the National Institute of Intellectual Property of the Ministry of Justice of the Republic of Kazakhstan. An examination is carried out on the application in the established manner, the results of which make a decision on the grant of a patent or on the refusal to grant it. A state fee is charged. An application for a utility model, among other documents, should contain: a description of the utility model, revealing it with a completeness sufficient for implementation; a utility model formula expressing its essence and completely based on the description;
3. The declaration of conformity is a document issued by the manufacturer of the goods in which the quality of the products is declared on the basis of independently collected evidence. Responsibility for the accuracy of the data rests to the person who submits the application to the relevant state body. The application is submitted to a certification body accredited in this field (the cost of the service is from 35,000 tenge). The declaration of conformity is issued for up to five years.

9 Market research

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

1. Dynamics of increase in percent of people with disabilities
2. The increase in the number of accidents
3. The desire of people with disabilities to be socially active and useful
4. The use of modern technology to improve living standards and comfort for people who use wheelchairs
5. After analyzing the market of competitors, revealed the fact that our product is economically more profitable and is not inferior in quality to competitors.
6. People tend to buy goods with the lowest price. In case of inflation, the price may change according to the exchange rate

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

1. Online article: <https://inbusiness.kz/ru/news/za-pyat-let-chislo-invalidov-v-kazahstane-velichilona-7-5>
2. Online article: https://forbes.kz/life/observation/situatsiyu_na_dorogah_kazahstana_nazvali_katastroficheskoy_kak_eto_ispravit/
3. Social survey
4. Psychological analysis

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.)

- current customers – people who have wheelchairs
- old people with limited ability to move
- people with disabilities
- people who are in the rehabilitation period after diseases

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

- ease of use for all groups of customers, including old and young people
- independence from accompany people
- new and additional features
- mobility and active social life
- long distance travel without technical problems
- high level of cost-effectiveness

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

- The result of the written survey showed that 83% of respondents apply positively to the idea of creating this product, 10% from 100% responded negatively and only 7% found it difficult to answer
- Personal interview with customers – people who currently used wheelchairs
- Personal interview with doctors from rehabilitation centers

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 per month	Price they might pay per unit, euro

constantly used		
low level of income	12	205
middle level of income	16	215
high level of income	2	230
rehabilitated people		
low level of income	0	205
middle level of income	2	210
high level of income	8	215

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"> Power/Electric wheelchair 	<ul style="list-style-type: none"> Aesthetics Easy to use – effort on working organs Convenience in use Battery capacity is large High permeability 	<ul style="list-style-type: none"> High price Difficult to transport Large size and heavy weight Low access to market Seat selection according to users parameters: weight, diagnosis User assignment: street, home, gym.
<ul style="list-style-type: none"> Manual/Mechanical wheelchair 	<ul style="list-style-type: none"> Compact size Light weight High passability 	<ul style="list-style-type: none"> Easy to use – effort on working organs Difficulty of using in bad weather

		<ul style="list-style-type: none">• Dependence on the accompany person• No stunner accessories• The necessity of customer's body strength• Low level of maneuverability
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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. To upgrade the mechanical wheelchair with manual transmission
2. Reduce the weight of an electric wheelchair
3. Easy-to-use manual wheelchair in winter
4. Increase the maneuverability of the electric wheelchair
5. Decrease the cost
6. Easy to transported
7. Independent from other people

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. Exchange currency rate increased
2. Closing the border with China, as a main seller of wheelchairs
3. The increase in the price of components
4. Decrease in sales of electric wheelchairs
5. Increase in transportation costs

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. Search for new suppliers
2. Sign an agreement between the supplier and our company

13 Pricing

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

- Cost-Plus Pricing

Cost-Plus pricing based on calculating the total cost for products plus a percentage mark-up (approximately 20%) to determine the final price.

Total cost includes:

material costs - 127€

labour costs - 26€

overhead - 25€

total cost 178€

price= 178€ + 35 € = 213€

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)
Wheelchair upgrade device / Electric wheelchair	£ 213,00	German power wheelchair 1965-3000 Made in China 996 - 1200 Domestic production 2000-2500

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

- Company recognition
- Payment is for the whole electric wheelchair
- Import of product from another country

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.)

- Online advertising: social networks, sales sites
- Offline advertising- LED screen, flyers, banners, campaign program
- Online catalogue
- Audio advertising – radio
- Word of mouth

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 euro	Necessary experience	Specialist skills and/or qualifications
<ul style="list-style-type: none">• Engineering	600	<ul style="list-style-type: none">• Programming knowledge	<ul style="list-style-type: none">• Knowledge of several programming languages
<ul style="list-style-type: none">• Finance	240	<ul style="list-style-type: none">• Finance background and experience	<ul style="list-style-type: none">• Calculating skills
<ul style="list-style-type: none">• Marketing	280	<ul style="list-style-type: none">• Marketing background and experience	<ul style="list-style-type: none">• Experience in communication

16 Premises

	Cost, euro
Premises required at start-up: workshop for production cabinet	1050,00

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
<ul style="list-style-type: none">• AliExpress	<ul style="list-style-type: none">• microcontroller Arduino	From 3 to 6-7 weeks
<ul style="list-style-type: none">• AliExpress	<ul style="list-style-type: none">• wheels	
<ul style="list-style-type: none">• AliExpress	<ul style="list-style-type: none">• batteries	
<ul style="list-style-type: none">• AliExpress	<ul style="list-style-type: none">• joystick	
<ul style="list-style-type: none">• AliExpress	<ul style="list-style-type: none">• sensors	
<ul style="list-style-type: none">• AliExpress	<ul style="list-style-type: none">• wires	
<ul style="list-style-type: none">• AliExpress	<ul style="list-style-type: none">• box	
<ul style="list-style-type: none">• AliExpress	<ul style="list-style-type: none">• bolts	
<ul style="list-style-type: none">• AliExpress	<ul style="list-style-type: none">• soldering kit	
<ul style="list-style-type: none">• AliExpress	<ul style="list-style-type: none">• spanners	

18 Equipment

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

Resource	When	How funded	Cost € per unit
<ul style="list-style-type: none">soldering kit	<ul style="list-style-type: none">July	<ul style="list-style-type: none">https://ru.aliexpress.com/item/32963583169.html?spm=a2g0o.productlist.0.0.400665e9m7HKsr&algo_pvid=017491df-c5da-4f9a-bdb6-	66
<ul style="list-style-type: none">spanners	<ul style="list-style-type: none">July	<ul style="list-style-type: none">https://ru.aliexpress.com/item/32906040071.html?spm=a2g0o.productlist.0.0.4940abfdtPZQy9&s=p&algo_pvid=c11e048-2f76-4d1f-8bbd-	45

19 Managing operational risks

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

Risk	Solution
<p>Staff</p> <ul style="list-style-type: none">• Health problems• Left for a long time	<ul style="list-style-type: none">• Search for a replacement for a period of absence
<p>Suppliers</p> <ul style="list-style-type: none">• Price increase• Company closure• Parcel loss	<ul style="list-style-type: none">• Replacement• Search for new suppliers• Cargo insurance

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. Low demand
2. The level of taxes increased
3. Exchange currency rate increased

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

1. Search for new suppliers
2. Searching for new investors
3. Decreasing of operational costs

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 \(ODS, 34 KB\)](#)