

BUSINESS PLAN FOR 2011-2016



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1. EXECUTIVE SUMMARY

1.1 EXECUTIVE SUMMARY

As criminal events have been increasing in today's world, the main focus point of the humanity has changed. Mainly, we do not care anything more than ourselves' and relative's safety. People start to product and use safer cars and health care methods. However, there are many criminal problems that still make the world in danger. One of the most fatal threats which make most of the people is personal armaments. People get used to see, witness or at least read about the accidental or criminal cases in their daily lives.

The USA example could be a very good proves for this issue. The statistical numbers show how the personal armament is affecting the world we live in:

- About 14% of child victimizers carried a weapon during the violent crime, compared to nearly 1/2 of those who victimized adults.
- With at least one gun in nearly half the households in the country, with two-thirds of our teenagers reporting they could get a gun in an hour, with virtually every kid exposed to vivid movie and television scenarios legitimizing violence, we live in dangerous times.

As the usage of guns are increasing, we need a solution of safety for guns and that's why we are happy to announce our new product: "RFID tag implemented on the Guns"

After completing the product design and with a possible model in our minds, company workers start to focus on market target of this product. Evaluating options on how to sell the product, determining the price of it, analyzing the competitors become more important. As we have only one competitor in the world market, located in the USA and as their market price is very high which is \$87.5; the position of S&D Co. in the gun market will be strong enough to compete with its current and possible rivals in the short term and long term. As far as we have made analyzes on the production cost, we are able to produce our product on the price level of \$37.05. Therefore, especially in the Turkish gun market, S&D Co. will be the price maker. S&D Co. will established with the share capital of \$2,100,000

1.2 THE COMPANY

The S&D Cooperation was established in September 2009 with the aims of creating a safe world by implementing and producing tags on the gun. The founders of the company are all young professionals, who have great capabilities in their focus areas. Therefore, we allocate our management system in five parts which works under the authority of Chief Executive Officer. Mr. Ulaş Sancaklı, who is the CEO of the company, has the great capability of managing entire organization, quality policy, and creating bridges between technical and marketing department. Ms. Derya Şensoy, the CFO of the company, is famous on the analyzing skills, especially in the financial area which includes the knowledge of stock and exchange market. The CMO of the company, Gökhan Yalçın, is an experienced member about marketing issues who have worked in a number of projects. The CTO of the company, Mr. Berk Turgut, has great ability on RFID tags and circuit schemas with his superior knowledge of electrical and electronical engineering issues, also Mr. Onur Özşener has very high engineering skills, and with the help of this, he is managing the research and development part of the company. Mr. Doruk Çetemen is the software interface application and website designer, who would be very beneficial in the marketing part of the company.

1.3 THE PRODUCT

“RFID implemented tag” works with a simple technological system which has a receiver and transmitter connection. The system of Safe Gun will consist of five different parts: RFID reader/antenna, RFID tag, Mechanical lock, Battery system and Display part. With the help of that, the product will be working to lock the system of the gun, which is independent from the gun’s current lock system.

1.4 CORPORATE STRATEGY

The future plans of the company are as the followings:

1.4.1. We are planning to establish an NGO about safe guns, which will create a public sense and work on lobbying facilities to create institutions.

1.4.2. Firm will co-operate with media channels, which would again be beneficial to create public sense and spreading the brand name.

1.4.3. In the coming five years, we are planning to be the leader of the world market.

1.4.4. S&D company will work for lobbying on governments to pass institutions about making RFID implemented tags as an obligatory part of weapons which is used by whole police and security organizations.

1.4.5. After succeeding about lobbying facilities, we are aiming to sell our product to %100 of new gun owners ,about %50 of the citizens who have already owned guns, %99 of the governmental and non-governmental security organizations (%1 gave to special missions) and a little part of army (approximate number of the quantity of potential sales are 950.000).

1.4.6. Beside selling the product, S&D Co. is aware of the importance of establishing customer services and available updates to expand the financial situation of the company.

1.4.7. S&D Co. will give significance on advertising with using highest advertising path to create brand awareness, maintain the market share for possible entries to the market by considering anti-trust law.

1.4.8. The company is planning to create a vertical merger with gun producer (i.e. Colt) to decrease the cost of production.

1.4.9. We aim to enter IMKB-100 in next 10 years.

1.4.10. After gaining a respectable position in Turkish market, S&D Co. starts to involve in other GDPs, with help of possible international cooperation and approximately same marketing systems.

1.4.11. S&D Co. will aim to increase earning per share at least %25 for 5 years.

1.4.12. The company will use Taylorism policy in mass production.

1.4.13. The company will be 24-hours open by using three 8-hour shifts, to use the production machines in a most effective way.

1.4.14. We aim to receive full customer satisfaction.

1.5 FINANCIAL PROJECTIONS

S&D Co's adaptive strategy is market penetration strategy and an initial investment of \$350.000,00 per shareholder is needed. The company will work with a profit margin of 49,73% by selling safe gun with a price of \$60.00. By adapting this strategy we are planning to gain 99% of the RFID related market which is approximately 4.600.000 units of sale at the end of fifth year.

1.6 QUALITY

To be able to satisfy the demands of customers, it is S&D Co's strict policy to try to improve and substantiate its services. The understanding of quality during the development of the product and establishment of the company will absolutely continue during the development of S&D Co. Its intentions as quality includes:

1.6.1. Use innovative technologies to develop products, benefitting from the previous experiences.

1.6.2. During the designing, implementation and testing phases choose the efficient solutions, and try to develop more efficient ones.

1.6.3. Design and implement the product for customers' ease. There will be an understanding of the expectations of customers accurately.

1.6.4. In case of errors, act fast and apply a fast solution such that the customers should not suffer from the same problem.

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2. CURRENT SITUATION

2.1 BASIC CORPORATE DATA

Name of the Company: Security & Development Corporation

Sector: RFID

Capital: \$350.000

Head Office: Bilkent Cyberplaza-ANKARA

Manufacturing Plant: Sincan Organize Sanayi Bölgesi-ANKARA

2.2 VISION

The vision of the company is helping to create safer world by preventing deaths of people which is caused by the wrong or criminal usage of guns. We believe, with safe guns, we will see less children deaths, wrong usage of authority by policemen and unlicensed guns.

2.3 MISSION

S&D Co. aims to be the most powerful company in the sector. To create the values that S&D Co. cares, we plan that one day, everyone who has or wants to use gun will use our system which will help to create safer world. While getting market awareness and respectable position, our main mission will be gaining trusts of our customers. Also we will do our most for our shareholders to increase their profits.

2.4 COMPANY VALUES

2.4.1. Satisfaction of our customers is the main purpose of our company.

2.4.2. Increase quality while decreasing cost of production.

2.4.3. Drive the technology to reach the future era of the world, before the futures comes.

2.4.4. Hire the best labors for the best production for the best quality.

2.4.5. Aware of responsibilities, not only work, but social to lead the production for a safe world.

2.5. PRODUCT

2.5.1. Components of Product Design

The system of safe gun consists of five different parts: RFID reader/antenna, RFID tag, Mechanical lock, Battery system and Display part. Firstly, each basic component identified independently and then the relationships between these components were taken into consideration.

2.5.1.2. RFID reader /Antenna

RFID reader or the detector will consist of two major parts which are an antenna to receive signals from RFID tags and a microprocessor to process the data gathered from the RFID tags nearby and to activate the mechanical lock system. The reader is in dimensions of 25mm*35mm with a weight of 50 grams.

2.5.1.3. RFID Tag

RFID Tags were worn by users like a wristband or a ring. These tags have a specific frequency that will exactly match with the RFID reader. The tags are active when the emergency lock of the gun is enabled. According to S&D Co. latest researches, UHF tags are useful for small distanced RFID transceiver. Hence, S&D Co. implemented this technology on safe gun. Dimensions of the RFID tags are 1 cm radius.

2.5.1.4. Mechanical Lock system

S&D Co. mounts a solenoid near the emergency lock of the gun. It means product's solenoid and emergency lock controls the same mechanical system but its solenoid has the priority. It is activated by microprocessor. Whenever microprocessor takes a positive feedback from RFID reader, it sends any voltage to that solenoid and the solenoid will be open; therefore, the gun will be ready to use. Otherwise, it will not send a voltage in order to activate the solenoid so it will keep being locked and then the system will be locked despite its emergency lock is ON.

2.5.1.5. Battery System

The RFID reader/antenna and mechanical lock part is supplied by a Lithium Tionide battery. The range of its power is 3.3 V to 3.7 V. The dimension of the battery is 1cm radius x 2cm height.

2.5.1.6. Display Part

S&D Co. mounts two LEDs for emergency situations. One of them shows the low battery and the other one shows any error in the gun mechanically. The second (mechanic error) one is not certain for the current product. S&D Co. will launch an update version in near future.

All these components have a relationship with each other in a certain way:

- RFID reader receives signals from the RFID tag and there will be a continuous connection between the tag and the reader. There is a continuous communication between the tags and the reader.
- When a signal is received from the RFID tag, the microprocessor will be activated.
- The microprocessor will send any voltage to the solenoid part to keep the system locked or unlocked. If the microprocessor receives a positive signal from the RFID reader it will send any voltage in order to unlock the system. Therefore, a battery is needed about 3V. Also, the battery system will directly connect with the RFID transceiver. The theoretical computation and proof of this claim will be provided in the following reports. This will be the basic communication between the reader, the tag and the microprocessor. This communication helps the signal reach to the reader with preserving accurate information.
- In the next period, we are planning to improve our system as it will detect any errors like malfunction and the battery's condition. Thus, we are planning to use two LEDs in order to display the condition of the mechanism. Also, this display system has a direct connection with the RFID transceiver.

2.5.2. Interfaces

There is only one basic interface used in the system:

2.5.2.1. SPI (Serial Peripheral Interface)

The Serial Peripheral Interface Bus or SPI bus is a synchronous serial data link standard named by Motorola that operates in full duplex mode. Devices communicate in master/slave mode where the master device initiates the data frame. Multiple slave devices are allowed with individual slave select (chip select) lines. Sometimes SPI is called a "four wire" serial bus, contrasting with three, two, and one wire serial buses. To begin a communication, the master first configures the clock, using a frequency less than or equal to the maximum frequency the slave device supports. Such frequencies are commonly in the range of 1-70 MHz.

The master then pulls the slave select low for the desired chip. If a waiting period is required (such as for analog-to-digital conversion) then the master must wait for at least that period of time before starting to issue clock cycles.

During each SPI clock cycle, a full duplex data transmission occurs:

- the master sends a bit on the MOSI line; the slave reads it from that same line
- the slave sends a bit on the MISO line; the master reads it from that same line

Not all transmissions require all four of these operations to be *meaningful* but they do happen.

Transmissions normally involve two shift registers of some given word size, such as eight bits, one in the master and one in the slave; they are connected in a ring. Data is usually shifted out with the most significant bit first, while shifting a new least significant bit into the same register. After that register has been shifted out, the master and slave have exchanged register values. Then each device takes that value and does something with it, such as writing it to memory. If there is more data to exchange, the shift registers are loaded with new data and the process repeats.

Transmissions may involve any number of clock cycles. When there is no more data to be transmitted, the master stops toggling its clock. Normally, it then deselects the slave.

2.5.3. Software Structure

- Software programming is needed in the reader and in the microprocessor programming.
- The software used in the reader will run on C programming language.

2.6. CORE COMPETENCIES

Our research data states that:

2.6.1. The USA example could be a very good proves for this issue. The statistical numbers show how the personal armament is affecting the world we live in:

- About 14% of child victimizers carried a weapon during the violent crime, compared to nearly 1/2 of those who victimized adults.
- With at least one gun in nearly half the households in the country, with two-thirds of our teenagers reporting they could get a gun in an hour, with virtually every kid exposed to vivid movie and television scenarios legitimizing violence, we live in dangerous times.

2.6.2. Nowadays, a research of MKE (Makina ve Kimya Enstitüsü) mentioned that the usage of guns by women in Turkey is increasing with an increasing acceleration.

2.6.2. 596 thousands 495 people carrying weapons in Turkey, 475 thousand 542 people have also have licenses. According to the states' gun permit law record the total number of weapons taken under 1.072.037 in Turkey, which means that 65% of population of Turkey has a gun.

2.6.3. Since there are 500 thousand of guns without license, which is a great number for a country with a nearly 70 million population, the government will approach to our product, safe gun, more reasonable.

2.6.4 According to a crime statistical data, in Turkey, the number of crime by licensed guns is 1515, and the number of crime by unlicensed guns is 2372 out of 113.816.

2.6.5. There are 152.415 policemen and 665.000 soldiers in Turkey, which will be our targets in market.

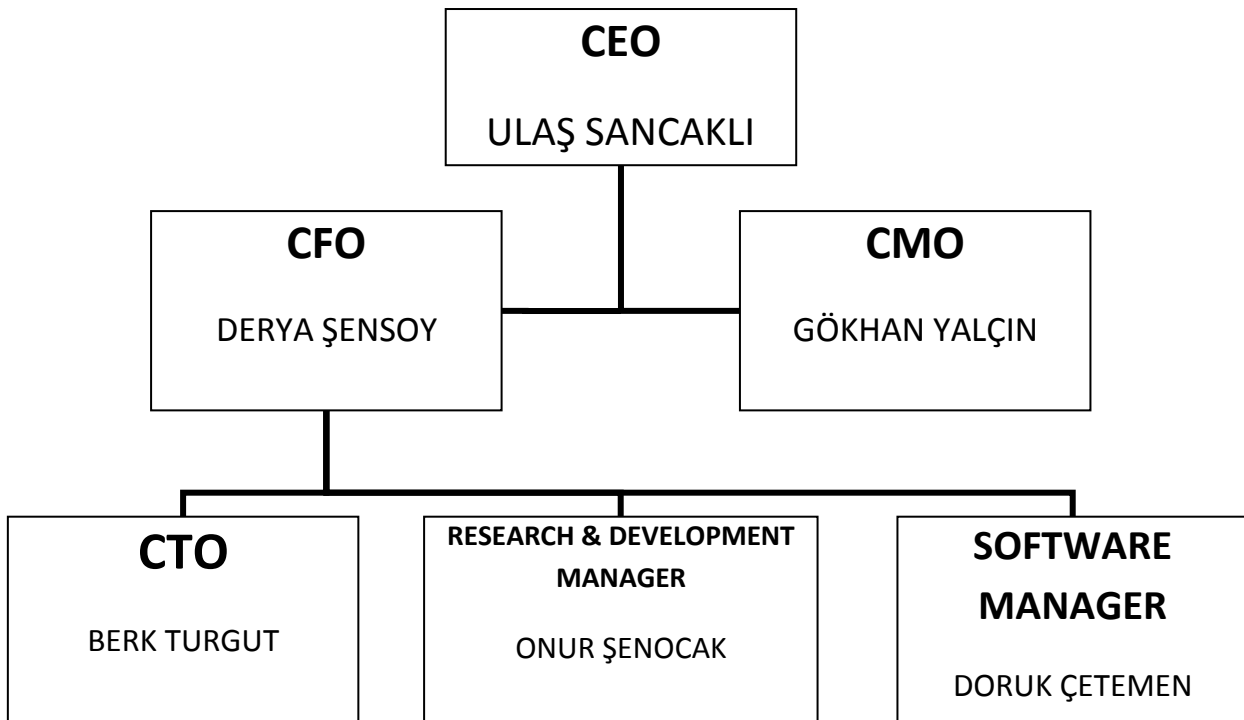
3. ORGANIZATION AND MANAGEMENT

3.1. INFORMATION ABOUT COMPANY SHAREHOLDERS

S&D Co. is Engineering and Innovation Design cooperation for safety, built up in September, 2009. The main aim of the cooperation is to find new technologies to make the world a safer place for people. The first product of S&D Co. is named as safe gun. S&D Co. is composed of 6 shareholders with equal shares: Ulaş Sancaklı, Derya Şensoy, Gökhan Yalçın, Berk Turgut, Onur Özşener and Doruk Çetemen.

3.2. ORGANIZATION CHART

S&D Co. organizational partition:



3.3. EMPLOYEES AND DUTIES ASSIGN TO THEM

Ulaş Sancaklı,

CEO (Chief Executive Officer):

He is the head of the corporation. Financial Affairs and Strategy Development, Production Development, Software and Design, Quality and Market Development Directors are interconnected under CEO. He has authority on all steps in production, finance, marketing and quality, also decisive role on the current and future plan of S&D Co.

Derya Şensoy,

CFO (Chief Financing Officer):

She is responsible of S&D Co.'s financial issues; risk analysis, financial planning, cost and revenue reckoning, fund foreseeing, and accounting. She has also authority on future plan of S&D Co.

Gökhan Yalçın,

CMO (Chief Management Officer):

He has authority on market research, advertising, and advertising policies, pricing of the product, public reactions, and marketing communications. He detects the current developments and prepares applications for marketing. Also, his main responsibilities are product development and sales management.

Berk Turgut,

CTO (Chief Technical Officer):

He is responsible of improving the products and tracks the current development in technology. He has authority on running production stages.

Onur Özşener,

Research & Development Manager:

He works mutually with CTO to improve S&D Co.'s product design, availability, usability, and development. He is also responsible on tracking the current development in technology and implements it on S&D Co. products.

Doruk Çetemen,

Software Manager:

He is responsible for the future pop up in the software and correcting those errors. Besides, he is responsible of the website design of the S&D Co.

4. OPERATIONAL PLAN

Safe Gun contains RFID reader/antenna, RFID tag, Mechanical lock, Battery system and Display part.

4.1. PRODUCTION

4.1.1. Product Description

Product of S&D Co. is named as "Safe Gun". RFID technology implemented on guns, so only the owner of the gun can use his/her gun by wearing the bracelet (RFID reader on bracelet). Its main purpose is to make the world a safer place.

4.1.2. Hardware Description

4.1.2.1. One RFID reader-writer chip that detects RFID tagged items are in the range of 3-5 cm (can be more with electronic control). It has anti-collision feature for multiple tag reading.

4.1.2.2. RFID tags are coherent with RFID reader with anti-collision feature for multiple reading.

4.1.2.3. Mechanical Lock will be activated by microprocessor. Whenever microprocessor takes a positive feedback from RFID reader, it sends a voltage to that solenoid and the solenoid opens. Hence, the gun gets ready to use. Otherwise, it does not send a voltage in order to activate the solenoid, so it will keep being locked and then the system will be locked despite its emergency lock is ON.

4.1.2.4. The range of its power is 3.3 V to 3.7 V. The dimension of the battery is 1cm radius x 2cm height.

4.1.3. Interfaces

4.1.3.1. There is only one basic interface used in the system: The Serial Peripheral Interface Bus or SPI bus is a synchronous serial data link standard named by Motorola that operates in full duplex mode. Devices communicate in master/slave mode where the master device initiates the data frame. Multiple slave devices are allowed with individual slave select (chip select) lines. Sometimes SPI is called a "four wire" serial bus, contrasting with three, two, and one wire serial buses. To begin a communication, the master first configures the clock, using a frequency less than or equal to the maximum frequency the slave device supports. Such frequencies are commonly in the range of 1-70 MHz.

4.1.4. Software

4.1.4.1. Software programming is needed in the reader and in the microprocessor programming.

4.1.4.2. The software used in the reader will run on C programming language.

4.2. PRODUCTION COST AND TECHNIQUES

4.2.1. Soldering Machine

Chips and other components are placed on PCB. Soldering is done with automatic wave soldering machine. One technician is assigned for machine.

4.2.2. Pick and Replace Machine

S&D Co. manufactures a selection of pick and place machines for use in automatic systems. This equipment is specifically designed for facilities needing quick set-up, ease of operation and high reliability in low to medium volume pick & place applications. One technician is assigned for this machine.

4.3. QUALITY POLICY

As a conscious company S&D Co. and the organization team notice the importance of the quality issue because S&D Co. want to conserve market share. Product qualifications should be appropriate due to engineering and marketing ethics and it is mainly based on TQM (Total Quality Management). Main purpose of the our quality policy is to meet customer needs and satisfaction.

4.3.1. Our quality objectives

4.3.1.1. Decrease designing defects

4.3.1.2. Decrease manufacturing defects

4.3.1.3. Improving service and process quality through measurements and process management

4.3.1.4. Give importance to customer service in order to meet customer satisfaction and needs.

4.3.1.5. Seeking continuously for the improvements of effectiveness of our quality management system.

4.3.1.6. In order to maximize business need S&D Co. will maintain to give importance to staff development programs.

4.3.2. Quality Control

The main step of the quality control is checking the product's availability due to customer needs. This process is managed throughout all the steps of design, production, installation, documentation, service facilities. Further stages of quality control are statistical control and failure testing.

4.3.3. Statistical Control

The purpose of this section is to outline the steps that can be taken to exercise statistical control over the measurement process and demonstrate the validity of the uncertainty statement. After the basic controls in each management and also in time of production, some problems can be occur and overcome these problems is a crucial problem for not vesting raw materials and time. While doing Statistical control stage, S&D Co realize that the measurement processes can change both with respect to bias and variability.

4.3.4. Failure Testing

Failure testing is a way to ensure that the company is producing a product and service that will not fail under different circumstances and situations of stress, weather, temperature etc. So S&D Co achieved failure testing by running tests to both hardware and software parts of the product. By getting results from these tests definition of the threshold of the product become easier. Failure testing, even after a product is developed, will help the company about the manufacturing processes is optimal or not. So, it can be said that this Failure Testing will help improving our product in relation to this also help our services.

4.4. CUSTOMER SERVICE

Customer services of S&D Co. will be based in İstanbul first (since it is the highest populated city in Turkey) and then gradually spread around the country followed by Ankara, İzmir, İzmit and other cities of Turkey. S&D Co. also plans to expand its business on the international scale in the long run; starting from the world's major countries. The criteria considered for choosing these sample cities varied from population and potential accidental deaths by guns.

4.5. PRODUCT DEVELOPMENT

S&D Co. is planning to produce a safe gun which works with its owner's finger print in next future. Hence, our safety gun is going to be safer than any other system before. Moreover, S&D Co. has a plan on stealing of guns. S&D Co. is planning to establish a GPS to find the right place of the gun. On the other hand, when the thief tries to use the gun, it will send fingerprint of the thief to the satellite and from there to a database management system on some police station, if there is a match with any person who has a criminal record, it will be

easy to find his location. Hence, not only it makes the gun safe, but also with the help of that it will make the world a safer place.

4.6. PRODUCTION LOCATION

S&D Co. has a production location at Sincan Organize Sanayi Sitesi since in SOSS, rent price are cheaper than OSTİM, and most of the KOBİ in Ankara takes place there. On the other hand, it is a good place for distribution and it is the biggest industrial area in Ankara. There will be three 8-hour-shifts in S&D Co, and those time intervals are; 9:00 – 17:00, 17:00 – 01:00, 01:00 – 09:00 on week days. The company can be opened at the weekends in order to reach the number of goods desired.

5. MARKETING PLAN

5.1 THE ECONOMY AND THE CURRENT SITUATION

After Turkish economy has recovered from the financial crisis of 2001, because of the global financial crisis of 2008, we see a recession period in the Turkish economy. As almost every local economy has met, the Turkish economy has also had a decreasing economy in 2008 and 2009. Numbers of the firm and the ratio of the hot money in the market have declined.

On the other hand, markets prospects are not that much pessimistic if we compare the market prospect of Turkish economy with other economies. According to EU Economic Forecasting Report of Spring 2009, a 2.2 ratio of economic growth would be seen in the Turkish economy at the end of the year 2010. By comparing the forecasting prospects of the developed countries, Turkey is recovering the economy very early. Beside the short-run reports for the Turkish economy, the most significant data of the Turkish economy for the investors is the recent OECD report which is forecasting the 2011-2017 period of the Turkish economy. According to this report, Turkey will be the growth champion among the member countries of the OECD with the 6.7 ratio of growth.

As a conclusion, although the current situation of the Turkish economy has all the signals of the recession, the reports show that Turkey is at the final part of the recession. Therefore, with the lights of the forecasting reports about Turkish economy, the Turkish economy will create a very

good environment to the investors and 2010 and 2011 would be very good timing to enter the market.

5.2 THE MARKET

The first product of the S&D Co., “Safe Gun” is a system which is an RFID technology and has an aim to prevent gun accidents and criminal usage of the security guns which is caused by stealing.

5.2.1 The functions:

5.2.1.1. the most important function of the safe gun is the preventing role of the accidents which is caused by children or results with the deaths of them. As an example which shows the importance of the issue, the 2002 edition of *Injury Facts* from the National Safety Council (USA) reports the following statistics:

- In 1999, 3,385 children and youth ages 0-19 years were killed with a gun. This includes homicides, suicides, and unintentional injuries.
- This is equivalent to about 9 deaths per day, a figure commonly used by journalists.
- The 3,385 firearms-related deaths for age group 0-19 years breaks down to:
 - 214 unintentional
 - 1,078 suicides
 - 1,990 homicides
 - 83 for which the intent could not be determined
 - 20 due to legal intervention of the total firearms-related deaths:
 - i. 73 were of children under five years old
 - ii. 416 were children 5-14 years old
 - iii. 2,896 were 15-19 years old

5.2.1.2. Also the safe-gun project aims the criminal events which are caused by steals of police guns. As we read almost every week from the newspapers, the criminals who don't have any gun with them are fond of stealing the gun of the security member to escape from the law system under the pressure of their psychological situation. However, with the safe gun system, even the criminal take the gun of the security of member, the gun will be locked.

Therefore, with the help of our RFID technology, we will not see any situation that we have seen before anymore.

5.2.2. Customer Prototypes:

5.2.2.1. Parents who have or are willing to buy gun: Under the lights of psychological researches, the most preferential instinct of the parents is protecting their children. However, by using guns, every parent puts their children in danger (For numerical data, please look at 5.2.1.1). Therefore, with the right advertisement strategy, we believe that parents will be our devoted customers.

5.2.2.2. Governmental security organizations: firstly, we can relate the members of the police department into the first group (5.3.2.1) as these people may also have a family too. Secondly, the members of the governmental security organizations have always of the thread of losing their guns in theft. It could happen in two situations. One is, the criminal can try it in the time when policemen are close to arrest him. The second situation is, criminal may steal the gun for the long-time purposes. However, safe guns will not let them to realize their plans.

5.2.2.3. Non-governmental security organizations: the private security sector has developed incredibly especially in last 10 years. As there are no differences between the missions of the governmental and non-governmental security organizations; the dangers that we explained in 5.2.2.2 are valid for this group too. Therefore, non-governmental security organizations are counted in our main focus groups.

5.2.2.4. Military services: this group will not be the main focus group of the S&D Co. because the missions of the military which are called as secret is not suitable for our technology. However, the military would still need the safe gun technology to use safe guns in watchtowers or in some similar activities.

5.2.3. Conclusion:

The predicted sales number according to target groups are listed as followings:

Group.5.3.2.1	7.000.000-10.000.000 total number of licensed and unlicensed guns, our target number is 4.000.000
Group.5.3.2.2	201.064
Group.5.3.2.3	296.000
Group.5.3.2.4	1.043.000-target is q=100.000
TOTAL	4.597.064

5.3. COMPETITORS

In the safety market, there is a similar product which is called as Magloc smartgun-smartlock. Although our idea is the same with Magloc, we use different methods and different market operations.

5.3.1. Specialties of Magloc

5.3.1.1. MAGLOC[®] smartgun conversion for 1911 A1 series pistols

US Patent #5394717, 5758524 and Patent Pending in other countries



Special Features:

Grip Lever - to transfer your hand energy into reconnection the firing mechanism.

Ready to fire indicator - protrudes out what the gun is ready to fire. Can be felt by the trigger finger and no need for visual confirmation.

On/Off switch - located on the left panel. Once the gun is activated by the matching magnetic ring, the system can be set to the on position and anyone without the ring can fire the gun.

- Drop in safety conversion. No drilling is required.
- Installed in less than 10 minutes.
- Once installed, the gun can only be fired by wearing a special magnetic ring.
- When the gun is off your hand, it locks itself right away.
- Works on magnetic and hand holding energy. No battery is required Sd.

MAGLOC[®] Smart Gun System for 1911A1 type pistols US\$89.50

5.3.2. Focus Market Differences

Magloc, as a firm, mainly focused on US market, therefore they mostly use their product on Glock Firearms because US Policemen carry Glock. However, our main focus point is CZ 75 B, because of Turkish policemen mostly use this brand. In the below part, you can see the differences between Glock and CZ 75 B:

5.3.2.1. Specialties of Colt

5.3.2.1.1. The GLOCK 26, often referred to as the "Baby GLOCK," has created a true and practical autopistol alternative to the standard five-shot snub-nose revolver.

Manufacturer: Glock

Model: G26

Cal/Gauge: 9mm

Action: Safe Action System



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MSRP: \$690

Gun Type: pistol

Barrel: 6.46

Overall Length: 6.29

Weight: 19.75

Finish: composite

Sights: n/a

5.3.2.2.Specialties of CZ75

CZ 75 B (9mm Parabellum)

CZ 75 B mod. TR is a traditional handgun issued by government, military and security agencies in all parts of the world.

Technical specialties



Caliber.....9 mm Luger / .40 S&W
Detachable magazine capacity.....15 / 10
Overall length.....206 mm
Barrel length.....120 mm
Height.....138 mm
Width.....~ 35 mm
Weight.....1000 g

Trigger mechanism.....SA/DA

Safety element..... manual safety, safety stop on the hammer, firing pin safety

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Note..... This is an offer of CZ pistols designed and manufactured in the Czech Republic for the market of Turkey.

Because of Magloc and our firm focused on different markets with different pistols and using different tools (rings and wristbands), we can say that we would be matchless in the market. The part of we concern is there may be some firms who produce different safety systems such as biometric fingerprint reader pistols. Although this method would be an alternative way of creating safe guns; because of fingerprint reading will take some time, it will not be a serious rival of our product.

6. MARKETING STRATEGY

6.1. PRODUCTION STRATEGY:

S&D Co. is planning to establish a factory which will work for mass production to meet the demands of the market. The factory which will be built in Sincan/ANKARA, have the great advantage being so close to intermediate goods. Hence, the account that we will be paying for logistics will be at the minimum. Besides then hiring human capital, we are planning to buy machineries. By doing this, we have a high fixed cost but we are minimizing the variable cost which would be good factor to take the attentions of investors and satisfies the shareholders in the long-run. Also, machineries would be our advantage for the potential entries to the market because considering that machineries will give the advantage of timing and it would make easier to make arrangement; new firms should meet with this high total fixed cost.

6.2. PRICING STRATEGY:

Firstly, reminding that we have only one competitor in the world market which is located in USA, we have to race with the price of \$89.50. As it is seen in the financial plan our production cost is about \$65(+/- \$2) in the short run. On the other hand, in the long run, we

just have to meet with TVC and because of this, our production cost will be lower than today. Hence, we are planning to sell our product around \$90. (Reminding that as the monopoly in the Turkish market, we will be the price-maker)

6.3. DISTRIBUTION STRATEGY:

In the very early beginnings of the business life of the company, due to the fact that, almost all of the governmental and non-governmental security organizations are located on Ankara, we should locate in Ankara too. By doing this, we will be minimizing the costs of the logistics. For the coming years, we are planning to establish HQs for the needs in other cities and countries. The S&D Co. has two different strategies:

6.3.1. Direct distribution:

By arranging agreements with organizations, we are planning to sell our products directly. i.e. if the whole police department decides to buy safe gun system, we will sell them by first hand. By doing this, the company will get all the profits by itself.

6.3.2. Distributions with cooperation:

For a new firm in the market, it would be so hard to reach each citizen who would like to buy a new gun or who have a gun and would like to integrate our lock system to his gun. Therefore, we need to make cooperation with gun firms to reach them easily.

6.4. PROMOTION STRATEGY:

S&D Co. will give the priority to use the rising conscious for the safety in the society. Therefore, we are planning to start a campaign about the dangers of the wrong usage of the usage of the guns. The steps of the campaign will be as followings:

- Establishing an NGO which is working for safety.
- By cooperating with NGO, spreading the campaign in the mass media.
- Taking the supports of organizations, NGOs and media
- By using this power, lobbying on the regulations for making the safe guns as an obligation for guns.

The other advertising way will be using the fear of parents to make them conscious about gun safety. These ads can be in every part of mass media.

7. FINANCIAL PLAN

The financial plan is the base stage of the company, also S&D Co. is a fresh start. S&D Co. is an entrepreneurship of shareholders. Hence, S&D Co.'s first financial transaction will start with production and sales which related to the actual earning and expenditures of shareholders. The possible scenarios are calculated under this financial plan for the next 5 years.

7.1. INCOME STATEMENT

7.1.1. INCOME STATEMENTS ELEMENTS

7.1.1.1. Income statement includes forecasted sales and production quantities. S&D Co. found this information considering the help of the marketing analysis and its survey.

7.1.1.2. Forecasted production quantities are respect to the data of potential customers.

7.1.1.3. Our cost of production is decided with the respect of the only competitor company in the USA.

7.1.1.4. Our selling price is decided with the respect of the only competitor in the USA, and being monopoly in Turkish Market.

7.1.1.5. Cost of goods sold calculated with respect to cost of direct materials, Direct Manufacturing Labor and Overhead Costs.

7.1.1.6. Direct material cost includes Microcontroller, RFID reader, Active Tag 13.56 MHz, Mechanic lock, Bracelet or Ring, and other circuit peripheral.,

7.1.1.7. Manufacturing Overhead Costs include heat, light, power consumption, depreciation, maintenance, plant rent, miscellaneous and other costs.

7.1.1.8. Operating Costs calculated with respect to registry costs, communication costs, office costs, education costs, guest hosting costs, Market improvement costs, Marketing salaries, Advertisement Costs, bank charge costs, inventory costs, depreciation costs, audit costs.

7.1.1.9. Registry costs include Company Foundation, Licenses and Patent rights, Copy Rights and Custom Registrations.

7.1.1.10. Communication Costs include telephone and internet costs.

7.1.1.11. Office costs include Office Rent, Office maintenance, Cleaning Costs, Heat, light and power, Stationery items, Newspaper and Magazines, Daily Food Cost and Other Costs.

7.1.1.12. Education costs include Marketing Methods Education, Planning Techniques Education and Production Methods Education.

7.1.1.13. Guest hosting costs include Dinner, Gifts, Hotel and Transportation Costs for the guest.

7.1.1.14. Marketing salaries include wages of administer, accountant, four salesman, secretary, stock office supervisor, purchasing supervisor, research and development staff.

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7.2. SALARIES OF OPERATING AND PRODUCTION

7.2.1. Net wage is the wage that S&D Co. will pay to the employee and Before Tax include SSK Primi İşçi Hissesi, İşsizlik Sigortası Primi İşçi Hissesi, Gelir Vergisi and Damga Vergisi and the company will pay tax with a rate 21,5%.

OPERATING WAGES				
TAX RATE	21,50%			
Employees Of the Operating	Net Wage	Before Tax	Taxes	Direct Labor Cost
Administrator	\$2.500,00	\$3.489,00	\$537,50	\$4.026,50
Account	\$900,00	\$1.256,04	\$193,50	\$1.449,54
Salesman*4	\$3.600,00	\$5.024,16	\$774,00	\$5.798,16
Secretary*3	\$1.500,00	\$2.093,40	\$322,50	\$2.415,90
Stock House Officer * 2	\$1.600,00	\$2.232,96	\$344,00	\$2.576,96
Purchasing Supervisor * 2	\$2.000,00	\$2.791,20	\$430,00	\$3.221,20
Research and Development Responsible	\$1.000,00	\$1.395,60	\$215,00	\$1.610,60
TOTAL WAGES	\$13.100,00	\$18.282,36	\$2.816,50	\$21.098,86

PRODUCTION LINE WAGE				
Employess of the Production Line	Net Wage	Before Tax	Taxes	Direct Labor Cost
TAX RATE	21,50%			
Technician for Pick&Replace Machine*5	\$7.250,00	\$10.118,10	\$1.558,75	\$11.676,85
Technician for the solder machine*5	\$7.250,00	\$10.118,10	\$1.558,75	\$11.676,85
Worker for the Assembly*10	\$3.191,60	\$4.454,20	\$686,19	\$5.140,39
Worker for the Packaging*10	\$3.191,60	\$4.454,20	\$686,19	\$5.140,39
TOTAL WAGES	\$20.883,20	\$29.144,59	\$4.489,89	\$33.634,48

7.3. COST OF OFFICE AND EQUIPMENT FOR THE PRODUCTION

Furniture and Machine	Unit	Costs
Computer	10	\$10.000,00
Employee Chair	20	\$2.980,00
Furniture	1	\$1.249,00
Manager Chair	1	\$199,00
Manager Desk Set	1	\$1.124,00
Meeting Desk	1	\$650,00
Multi-Functional Laser Printer	4	\$9.796,00
Personel Desk Set	8	\$4.552,00
Pick&Replace Machine*5	1	\$95.000,00
Solder Machine*5	1	\$107.500,00

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Visitor Chair	10	\$1.490,00
VOIP Telephone	10	\$2.490,00
TOTAL COST		\$237.030,00

7.4. MARKET PENETRATION STRATEGY

7.4.1. First Year Analysis

7.4.1.1. S&D Co. is planning to produce 550.000 safe gun kits by taking reference marketing analysis.

7.4.1.2. S&D Co. guarantee procedure is changing the broken product with the new one, 50.000 units of product produced to the inventory for the first six months.

7.4.1.3. The cost of unit of the product is \$30.05 with %18 VAT included.

7.4.1.4. It is planned to have direct material cost shown in below table.

Direct Material Cost		
Number of Units used for the cost estimation		45833
ITEM NO	DESCRIPTION	PRICE
1	Microcontroller	\$6,70
2	RFID Reader	\$10,00
3	Active Tag 13.56 MHz	\$0,35
4	Mechanic Lock	\$5,00
5	Bracelet or Ring	\$4,00
6	Other Circuit Peripheral	\$4,00
7	PCB	\$2,00
8	Battery	\$5,00
	Total Unit Cost	\$37,05
	Total Direct Material Cost	\$1.698.112,65

7.4.1.5. It is planned to have production line wages for the first year shown in below table.

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PRODUCTION LINE WAGE				
Employess of the Production Line	Net Wage	Before Tax	Taxes	Direct Labor Cost
TAX RATE	21,50%			
Technician for Pick&Replace Machine*5	\$7.250,00	\$10.118,10	\$1.558,75	\$11.676,85
Technician for the solder machine*5	\$7.250,00	\$10.118,10	\$1.558,75	\$11.676,85
Worker for the Assembly*10	\$3.191,60	\$4.454,20	\$686,19	\$5.140,39
Worker for the Packaging*10	\$3.191,60	\$4.454,20	\$686,19	\$5.140,39
TOTAL WAGES	\$20.883,20	\$29.144,59	\$4.489,89	\$33.634,48

7.4.1.6. It is planned to have operating cost for the first year shown in below table.

OPERATING COSTS	
ADVERTISEMENT COST	\$60.000,00
AUDIT COS	\$3.600,00
BANK CHARGE COST	\$24.000,00
COMMUNICATION COSTS	\$6.000,00
DEPRECIATION COST	\$3.600,00
EDUCATION COSTS	\$12.000,00
GUEST HOLDING COST	\$6.000,00
INVENTORY COST	\$38.156,25
MARKET IMPROVEMENT COST	\$36.000,00
MARKETING SALARIES	\$120.000,00
OFFICE AND EQUIPMENT COSTS	\$237.030,00
REGISTRY COST	\$4.800,00
TOTAL COST	\$551.186,25

7.4.1.7. The cost of goods manufactured calculated which is shown below.

COST OF GOODS MANUFACTURED	YEAR 1
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Direct Material Cost	\$20.377.351,80
Direct Manufacturing Labor Cost	\$ 656.800,08
Manufacturing Overhead Cost:	
Heat, Light, and Power	\$ 9.000,00
Depretiation of Machine	\$ 5.460,00
Maintenance	\$ 2.000,00
Miscellaneous	\$ 1.500,00
Plant Rent	\$ 10.000,00
Research & Development Cost	\$ 10.000,00
After Sale Cost	\$ 50.000,00
Other Costs	\$ 1.000,00
Subtotal	\$ 88.960,00
Manufacturing Cost Incured during 2011	\$21.123.111,88
Total Manufacturing Cost Accounted For	\$21.123.111,88
Cost of Good Manufactured	\$21.123.111,88
The Unit Cost Of the Product	\$ 37,05

7.4.1.8. S&D Co. is planned to sell 550.000 units from the price of \$60 excluding VAT. It is planned to make total revenue of \$33.000.000.

7.4.1.9. At the end of 2011 expected profit of S&D Co. will be \$11.325.701,87. After 3 weeks later S&D Co. will start to make profits from its safe gun kits.

7.4.2. Second Year Analysis

7.4.2.1. S&D Co. is planned to produce 605.000 units of product.

7.4.2.2. The unit cost of the product is \$44,46 included 18% VAT.

7.4.2.3. It is planned to have direct material cost shown in below table.

Number of Units used for the cost estimation		50416
ITEM NO	DESCRIPTION	PRICE
1	Microcontroller	\$8,04
2	RFID Reader	\$12,00
3	Active Tag 13.56 MHz	\$0,42
4	Mechanic Lock	\$6,00
5	Bracelet or Ring	\$4,80
6	Other Circuit Peripheral	\$4,80
7	PCB	\$2,40
8	Battery	\$6,00
	Total Unit Cost	\$44,46
	Total Direct Material Cost	\$2.241.508,70

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7.4.2.4. It is planned to have production line wages for the second year shown in below table.

Administrator	\$2.700,00	\$3.768,12	\$580,50	\$4.348,62
Account	\$972,00	\$1.356,52	\$208,98	\$1.565,50
Salesman*4	\$3.888,00	\$5.426,09	\$835,92	\$6.262,01
Secretary*3	\$1.620,00	\$2.260,87	\$348,30	\$2.609,17
Stock House Officer * 2	\$1.728,00	\$2.411,60	\$371,52	\$2.783,12
Purchasing Supervisor * 2	\$2.160,00	\$3.014,50	\$464,40	\$3.478,90
Research and Development Responsible	\$1.080,00	\$1.507,25	\$232,20	\$1.739,45
TOTAL WAGES	\$14.148,00	\$19.744,95	\$3.041,82	\$22.786,77

Technician for Pick&Replace Machine*5	\$7.830,00	\$10.927,55	\$1.683,45	\$12.611,00
Technician for the solder machine*5	\$7.830,00	\$10.927,55	\$1.683,45	\$12.611,00
Worker for the Assembly*10	\$3.446,93	\$4.810,53	\$741,09	\$5.551,62
Worker for the Packaging*10	\$3.446,93	\$4.810,53	\$741,09	\$5.551,62
TOTAL WAGES	\$22.553,86	\$31.476,16	\$4.849,08	\$36.325,24

7.4.2.5. It is planned to have operating cost for the second year shown in below table.

S&D Co. assumed that operating cost will be increased 20%.

OPERATING COSTS	
ADVERTISEMENT COST	\$72.000,00
AUDIT COS	\$4.320,00
BANK CHARGE COST	\$28.800,00
COMMUNICATION COSTS	\$7.200,00
DEPRECIATION COST	\$4.320,00
EDUCATION COSTS	\$14.400,00
GUEST HOLDING COST	\$7.200,00
INVENTORY COST	\$45.787,50
MARKET IMPROVEMENT COST	\$43.200,00
MARKETING SALARIES	\$144.000,00
OFFICE AND EQUIPMENT COSTS	\$284.436,00
REGISTRY COST	\$5.760,00
TOTAL COST	\$661.423,50

7.4.2.6. The cost of goods manufactured calculated which is shown below.

COST OF GOODS MANUFACTURED	
Direct Material Cost	\$24.452.822,16
Direct Manufacturing Labor Cost	\$ 709.344,09
Manufacturing Overhead Cost:	
Heat, Light, and Power	\$ 10.800,00
Depretiation of Machine	\$ 6.552,00
Maintanance	\$ 2.400,00
Miscellaneous	\$ 1.800,00
Plant Rent	\$ 12.000,00
Research & Development Cost	\$ 12.000,00
After Sale Cost	\$ 60.000,00
Other Costs	\$ 1.200,00
Subtotal	\$ 106.752,00
Manufacturing Cost Incured during 2011	\$25.268.918,25
Total Manufacturing Cost Accounted For	\$25.268.918,25
Cost of Good Manufactured	\$25.482.422,25
The Unit Cost Of the Product	\$ 44,46

7.4.2.7. It is planned to sell 605.000 units from the price of \$72 including VAT. It is planned to make total revenue of \$43.560.000.

7.4.2.8. For this year it is planned to have an operating income of \$18.397.833,75.

7.4.3 Third Year Analysis

7.4.3.1. S&D Co. is planned to produce 665.500 units of product.

7.4.3.2. The unit cost of the product is \$53,35 included 18% VAT.

7.4.3.3. It is planned to have direct material cost shown in below table.

ITEM NO	DESCRIPTION	PRICE
1	Microcontroller	\$9,65
2	RFID Reader	\$14,40
3	Active Tag 13.56 MHz	\$0,50
4	Mechanic Lock	\$7,20
5	Bracelet or Ring	\$5,76
6	Other Circuit Peripheral	\$5,76
7	PCB	\$2,88
8	Battery	\$7,20
	Total Unit Cost	\$53,35
	Total Direct Material Cost	\$2.958.791,48

7.4.3.4. It is planned to have production line wages for the third year shown in below table.

Administrator	\$2.916,00	\$4.069,57	\$626,94	\$4.696,51
Account	\$1.049,76	\$1.465,05	\$225,70	\$1.690,74
Salesman*4	\$4.199,04	\$5.860,18	\$902,79	\$6.762,97
Secretary*3	\$1.749,60	\$2.441,74	\$376,16	\$2.817,91
Stock House Officer * 2	\$1.866,24	\$2.604,52	\$401,24	\$3.005,77
Purchasing Supervisor * 2	\$2.332,80	\$3.255,66	\$501,55	\$3.757,21
Research and Development Responsible	\$1.166,40	\$1.627,83	\$250,78	\$1.878,60
TOTAL WAGES	\$15.279,84	\$21.324,54	\$3.285,17	\$24.609,71

Technician for Pick&Replace Machine*5	\$8.456,40	\$11.801,75	\$1.818,13	\$13.619,88
Technician for the solder machine*5	\$8.456,40	\$11.801,75	\$1.818,13	\$13.619,88
Worker for the Assembly*10	\$3.722,68	\$5.195,38	\$800,38	\$5.995,75
Worker for the Packaging*10	\$3.722,68	\$5.195,38	\$800,38	\$5.995,75
TOTAL WAGES	\$24.358,16	\$33.994,25	\$5.237,01	\$39.231,26

7.4.3.5. It is planned to have operating cost for the second year shown in below table.
S&D Co. assumed that operating cost will be increased 20%.

OPERATING COSTS	
ADVERTISEMENT COST	\$86.400,00
AUDIT COS	\$5.184,00
BANK CHARGE COST	\$34.560,00
COMMUNICATION COSTS	\$8.640,00
DEPRECIATION COST	\$5.184,00
EDUCATION COSTS	\$17.280,00
GUEST HOLDING COST	\$8.640,00
INVENTORY COST	\$54.945,00
MARKET IMPROVEMENT COST	\$51.840,00
MARKETING SALARIES	\$172.800,00
OFFICE AND EQUIPMENT COSTS	\$341.323,20
REGISTRY COST	\$6.912,00
TOTAL COST	\$793.708,20

7.4.3.6. The cost of goods manufactured calculated which is shown below.

COST OF GOODS MANUFACTURED	
Direct Material Cost	\$29.343.386,59

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Direct Manufacturing Labor Cost	\$ 766.091,61
Manufacturing Overhead Cost:	
Heat, Light, and Power	\$ 12.960,00
Depretiation of Machine	\$ 7.862,40
Maintenance	\$ 2.880,00
Miscellaneous	\$ 2.160,00
Plant Rent	\$ 14.400,00
Research & Development Cost	\$ 14.400,00
After Sale Cost	\$ 72.000,00
Other Costs	\$ 1.440,00
Subtotal	\$ 128.102,40
Manufacturing Cost Incured during 2011	\$30.237.580,61
Total Manufacturing Cost Accounted For	\$30.237.580,61
Cost of Good Manufactured	\$30.493.785,41
The Unit Cost Of the Product	\$ 53,35

7.4.3.7. It is planned to sell 665.500 units from the price of \$86,4 including VAT. It is planned to make total revenue of \$57.499.200.

7.4.3.8. For this year it is planned to have an operating income of \$26.596.013,60.

7.4.4 Fourth Year Analysis

7.4.4.1. S&D Co. is planned to produce 732.050 units of product.

7.4.4.2. The unit cost of the product is \$64,02 included 18% VAT.

7.4.4.3. It is planned to have direct material cost shown in below table.

Direct Material Cost		
Number of Units used for the cost estimation		61004
ITEM NO	DESCRIPTION	PRICE
1	Microcontroller	\$11,58
2	RFID Reader	\$17,28
3	Active Tag 13.56 MHz	\$0,60
4	Mechanic Lock	\$8,64
5	Bracelet or Ring	\$6,91
6	Other Circuit Peripheral	\$6,91
7	PCB	\$3,46
8	Battery	\$8,64
	Total Unit Cost	\$64,02

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	Total Direct Material Cost	\$3.905.604,76
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7.4.4.4. It is planned to have production line wages for the forth year shown in below table.

Administrator	\$3.149,28	\$4.395,14	\$677,10	\$5.072,23
Account	\$1.133,74	\$1.582,25	\$243,75	\$1.826,00
Salesman*4	\$4.534,96	\$6.328,99	\$975,02	\$7.304,01
Secretary*3	\$1.889,57	\$2.637,08	\$406,26	\$3.043,34
Stock House Officer * 2	\$2.015,54	\$2.812,89	\$433,34	\$3.246,23
Purchasing Supervisor * 2	\$2.519,42	\$3.516,11	\$541,68	\$4.057,78
Research and Development Responsible	\$1.259,71	\$1.758,05	\$270,84	\$2.028,89
TOTAL WAGES	\$16.502,23	\$23.030,51	\$3.547,98	\$26.578,49

Technician for Pick&Replace Machine*5	\$9.132,91	\$12.745,89	\$1.963,58	\$14.709,47
Technician for the solder machine*5	\$9.132,91	\$12.745,89	\$1.963,58	\$14.709,47
Worker for the Assembly*10	\$4.020,50	\$5.611,01	\$864,41	\$6.475,41
Worker for the Packaging*10	\$4.020,50	\$5.611,01	\$864,41	\$6.475,41
TOTAL WAGES	\$26.306,82	\$36.713,79	\$5.655,97	\$42.369,76

7.4.4.5. It is planned to have operating cost for the fourth year shown in below table.

S&D Co. assumed that operating cost will be increased 20%.

OPERATING COSTS	
ADVERTISEMENT COST	\$103.680,00
AUDIT COS	\$6.220,80
BANK CHARGE COST	\$41.472,00
COMMUNICATION COSTS	\$10.368,00
DEPRECIATION COST	\$6.220,80
EDUCATION COSTS	\$20.736,00
GUEST HOLDING COST	\$10.368,00
INVENTORY COST	\$65.934,00
MARKET IMPROVEMENT COST	\$62.208,00
MARKETING SALARIES	\$207.360,00
OFFICE AND EQUIPMENT COSTS	\$409.587,84
REGISTRY COST	\$8.294,40
TOTAL COST	\$952.449,84

7.4.4.6. The cost of goods manufactured calculated which is shown below.

COST OF GOODS MANUFACTURED	
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Direct Material Cost	\$35.212.063,91
Direct Manufacturing Labor Cost	\$ 827.378,94
Manufacturing Overhead Cost:	
Heat, Light, and Power	\$ 15.552,00
Depretiation of Machine	\$ 9.434,88
Maintanence	\$ 3.456,00
Miscellaneous	\$ 2.592,00
Plant Rent	\$ 17.280,00
Research & Development Cost	\$ 17.280,00
After Sale Cost	\$ 86.400,00
Other Costs	\$ 1.728,00
Subtotal	\$ 153.722,88
Manufacturing Cost Incured during 2011	\$36.193.165,73
Total Manufacturing Cost Accounted For	\$36.193.165,73
Cost of Good Manufactured	\$36.500.611,49
The Unit Cost Of the Product	\$ 64,02

7.4.4.7. It is planned to sell 732.050 units from the price of \$103,68 including VAT. It is planned to make total revenue of \$75.898.944

7.4.4.8. For this year it is planned to have an operating income of \$38.907.051,31.

7.4.5. Fifth Year Analysis

7.4.5.1. S&D Co. is planned to produce 805.255 units of product.

7.4.5.2. The unit cost of the product is \$76,83 included 18% VAT.

7.4.5.3. It is planned to have direct material cost shown in below table.

Number of Units used for the cost estimation		67104
ITEM NO	DESCRIPTION	PRICE
1	Microcontroller	\$13,89
2	RFID Reader	\$20,74
3	Active Tag 13.56 MHz	\$0,73
4	Mechanic Lock	\$10,37
5	Bracelet or Ring	\$8,29
6	Other Circuit Peripheral	\$8,29
7	PCB	\$4,15
8	Battery	\$10,37
	Total Unit Cost	\$76,83
	Total Direct Material Cost	\$5.155.398,28

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7.4.5.4. It is planned to have production line wages for the fifth year shown in below table.

Administrator	\$3.401,22	\$4.746,75	\$731,26	\$5.478,01
Account	\$1.224,44	\$1.708,83	\$263,25	\$1.972,08
Salesman*4	\$4.897,76	\$6.835,31	\$1.053,02	\$7.888,33
Secretary*3	\$2.040,73	\$2.848,05	\$438,76	\$3.286,81
Stock House Officer * 2	\$2.176,78	\$3.037,92	\$468,01	\$3.505,93
Purchasing Supervisor * 2	\$2.720,98	\$3.797,40	\$585,01	\$4.382,41
Research and Development Responsible	\$1.360,49	\$1.898,70	\$292,51	\$2.191,20
TOTAL WAGES	\$17.822,41	\$24.872,95	\$3.831,82	\$28.704,77

Technician for Pick&Replace Machine*5	\$9.863,54	\$13.765,56	\$2.120,66	\$15.886,23
Technician for the solder machine*5	\$9.863,54	\$13.765,56	\$2.120,66	\$15.886,23
Worker for the Assembly*10	\$4.342,14	\$6.059,89	\$933,56	\$6.993,45
Worker for the Packaging*10	\$4.342,14	\$6.059,89	\$933,56	\$6.993,45
TOTAL WAGES	\$28.411,36	\$39.650,90	\$6.108,44	\$45.759,34

7.4.5.5. It is planned to have operating cost for the fifth year shown in below table.

S&D Co. assumed that operating cost will be increased 20%.

OPERATING COSTS	
ADVERTISEMENT COST	\$124.416,00
AUDIT COS	\$7.464,96
BANK CHARGE COST	\$49.766,40
COMMUNICATION COSTS	\$12.441,60
DEPRECIATION COST	\$7.464,96
EDUCATION COSTS	\$24.883,20
GUEST HOLDING COST	\$12.441,60
INVENTORY COST	\$79.120,80
MARKET IMPROVEMENT COST	\$74.649,60
MARKETING SALARIES	\$248.832,00
OFFICE AND EQUIPMENT COSTS	\$491.505,41
REGISTRY COST	\$9.953,28
TOTAL COST	\$1.142.939,81

7.4.5.6. The cost of goods manufactured calculated which is shown below.

COST OF GOODS MANUFACTURED	
Direct Material Cost	\$42.254.476,69

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Direct Manufacturing Labor Cost	\$ 893.569,26
Manufacturing Overhead Cost:	
Heat, Light, and Power	\$ 18.662,40
Depretiation of Machine	\$ 11.321,86
Maintenance	\$ 4.147,20
Miscellaneous	\$ 3.110,40
Plant Rent	\$ 20.736,00
Research & Development Cost	\$ 20.736,00
After Sale Cost	\$ 103.680,00
Other Costs	\$ 2.073,60
Subtotal	\$ 184.467,46
Manufacturing Cost Incured during 2011	\$43.332.513,41
Total Manufacturing Cost Accounted For	\$43.332.513,41
Cost of Good Manufactured	\$43.701.448,32
The Unit Cost Of the Product	\$ 76,83

7.4.4.7. It is planned to sell 855.255 units from the price of \$124,42 including VAT. It is planned to make total revenue of \$106.410.827,1.

7.4.4.8. For this year it is planned to have an operating income of \$62.119.841,34.

7.5. CONCLUSION

The first strategy is market penetration strategy and an initial investment of \$350.000,00 per shareholder is needed. The company will work with a profit margin of 49,73% by selling safe gun with a price of \$60.00. By adapting this strategy we are planning to gain 99% of the RFID related market which is approximately 4.600.000 units of sale at the end of fifth year.

- ❖ At the end of the first year it is planned to have revenue of \$33.000.000.
 - ✓ Profit of the first year: \$11.325.701,87.
 - ✓ Pay-back period is only 3 weeks which is a very short time.
- ❖ At the end of the second year it is planned to have revenue of \$43.560.000
 - ✓ Profit of the second year: \$18.397.833,75.
- ❖ At the end of the third year it is planned to have revenue of \$54.499.200.
 - ✓ Profit of the third year: \$26.596.113,60.

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❖ At the end of the fourth year it is planned to have revenue of \$75.898.944.

✓ Profit of the fourth year: \$38.907.051,31.

❖ At the end of fifth year it is planned to have revenue of \$106.410.827,1.

✓ Profit of the fifth year: \$62.119.841,34.

Total Revenue for 2011-2016: \$316.368.971,1.

Total Profit for 2011-2016 : \$157.346.541,87.

8. RISK ANALYSIS

8.1. SWOT Analysis: Strengths – Weaknesses – Opportunities - Threats

8.1.1. Strengths

* S&D Co. has the monopoly situation in the market. There is no firm to compete with the same innovative idea.

* Weapon industry is one of the sectors which are less affected by economic crisis and other problems as people and governments always need the feeling of safety.

* As the world economy is passing through the growth from recession, the establishment period of the firm is very suitable.

* the political situation of Turkey: as there is a polarization between ethnic groups, people will try to way to defend themselves, therefore demand in the gun market is predicted to increase.

* Recent social demands: people want safer world, parents' safety willing although they want to defense themselves.

* Huge sales potential: almost everyone who is interested with guns and weapons are in our target market. Related with this it is easy to find new shareholders.

* If the regulations about making safe guns as obligatory passes, we will directly sell our products without any ads.

8.1.2. Weaknesses:

* If regulations do not pass, our selling number predictions will decline dramatically. (Still we will have the financial ability to get profit.)

* Taxes will be much higher if we compare us with our competitor located in USA.

* Battery time is just for 5 years. That means it should be reloaded.

8.1.3. Opportunities:

* We can create a customer service to improve our financial position.

* As this problem is not only for Turkey but also a global problem, S&D Co. could enter to different local markets.

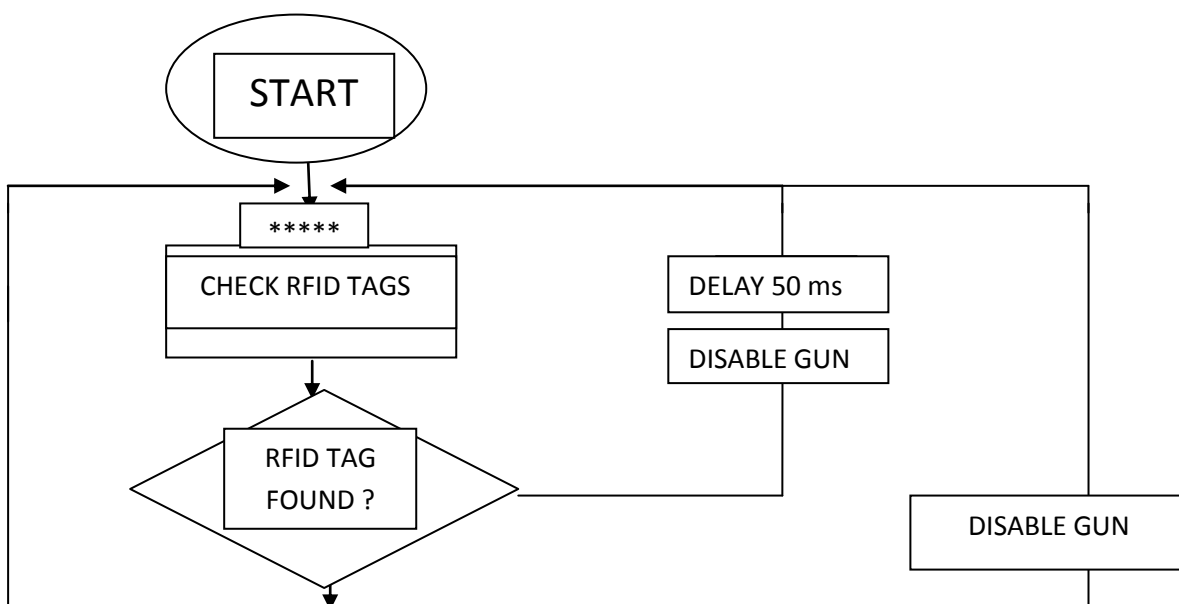
8.1.4. Threats:

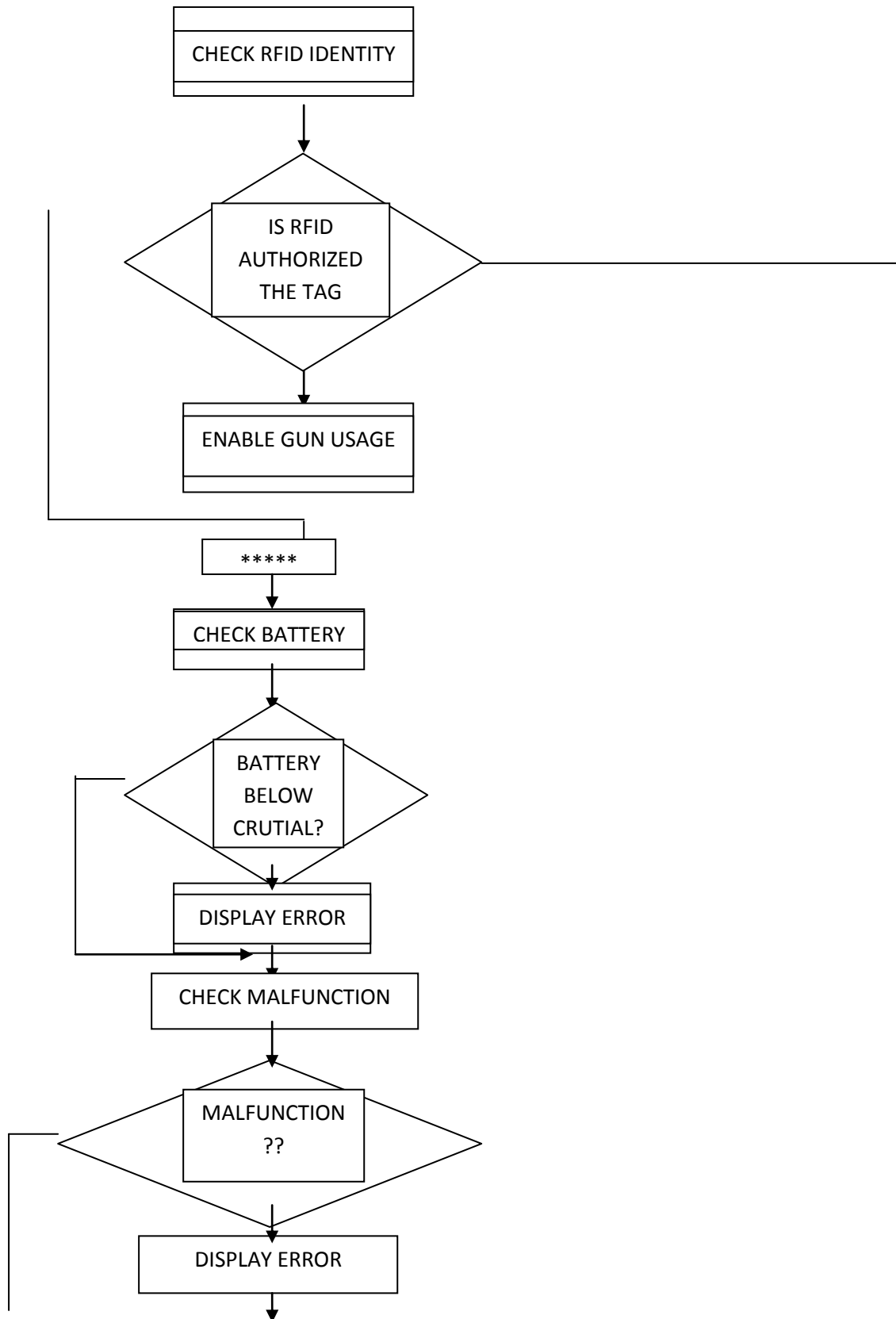
- Imitation of safe-gun technology is very easy, therefore there would be new imitation firms which we would compute in the future.

9. APPENDIX

9.1. The flowchart that used in the part: 2.5.1.6

Figure 1: Flowchart that shows the basic communication between the components.





9.2.SMT Quattro Peak S



The perfect choice for first time buyers Full convection reflow soldering system SMT Quattro Peak® S (N2) The smallest unit with the time-tested Quattro-Peak® technology. Ideal for the highest demands on quality and efficiency for medium throughput.

9.3. AIM - Fuji Flexible Placement Platform

- Best choice for high mix/low volume with many product changes
- Feeder exchanges without downtime
- Smallest footprint 1,7m x 2,2 mm
- Up to 180 feeder slots(8 mm) available
- Each feeder slot with LED indicators showing feeder status to operator.
- Operation terminal using symbol language
- Identical technology to NXT.



9.4. GPX - Fuji High Precision Screen Printer

- Easy and language independent operation concept



- Accuracy +/-0,015 mm
- Compatible with standard stencils - without additional adapter!
- Programmable Snap-off
- Automatic cleaning function
- PCB specification: min: 50x50 mm / max: 356x458 mm

9.5. QUALITY FUNCTIONS DEVELOPMENT

In order to refine the complete cycle of safe gun development S&D Co. decided to focus on the following criteria:

- Creating A Design That Meets Customer Needs
- Conducting Detailed Product Analyses Of Parts And Components
- Identifying The Processes Necessary To Make The Product
- Developing Product Requirements
- Prototype Testing
- Final Product Testing
- After-Sales Troubleshooting

To establish a more reliable quality S&D Co. published a customer survey on S&D Co. 'Safe Gun' and developed company's "WHAT"s according to the results of this survey.

Before making our survey S&D Co. personnel give brief information about product definition to help them understand “safe gun”, and why people may need to use “safe gun”. The survey that we make people will help us to have an idea about our potential customers on this product to further strengthen S&D Co. place in the market.

The raw results of the survey are presented below. They are then further analyze with statistical charts and the QFD essentials.

9.5.1 CUSTOMER SURVEY FOR S&D CO. SAFE GUN

1) After reading our brief product definition do you think you may use our product, safe gun?

- Yes, definitely.
- I would use it if the it is an obligation by government
- I would use it if the bracelet is comfortable
- I would use it unless I usually have to re-charge battery
- I would not use it

2) If you give a number to our product by taking reference that safe gun can decrease accidental deaths by guns? (5: strongly believe, 1: do not believe)

1:Do not Believe	2	3	4	5: Strongly Believe
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3) Which attribute of this product would you prioritize the highest according to your needs and expectations? Please list your rate of importance on a scale of 0 to 4 for each. (1: being the least important and 5: being the most important)

*Adaptability: Do you think it is important being comfortable to wear that bracelet while you are using the gun?

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1:The Least Important 2 3 4 5: The most important

*Affordability: The price should be kept as low as possible to allow faster market penetration.

1:The Least Important 2 3 4 5: The most important

*Convenience: It should be sold everywhere to have a wide public recognition.

1:The Least Important 2 3 4 5: The most important

*Reliability: The system should prove to work properly for various conditions, and its battery life.

1:The Least Important 2 3 4 5: The most important

*Customer service: There should a customer service to inform people about the usage of the gun and for every technical problem on safe gun

1:The Least Important 2 3 4 5: The most important

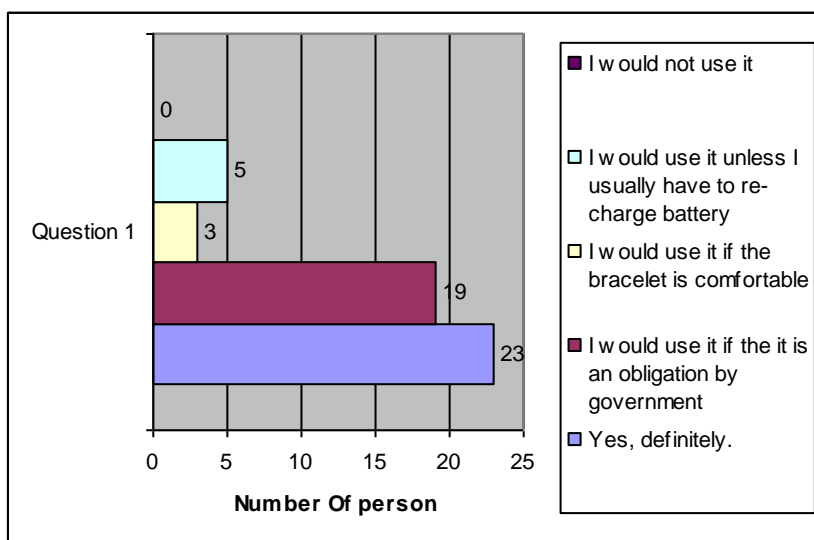
4. Is there anything you would like to tell S&D Co about its safe gun that was not already asked in the survey?

THE RESULT OF S&D CO. SURVEY

QUESTION 1)

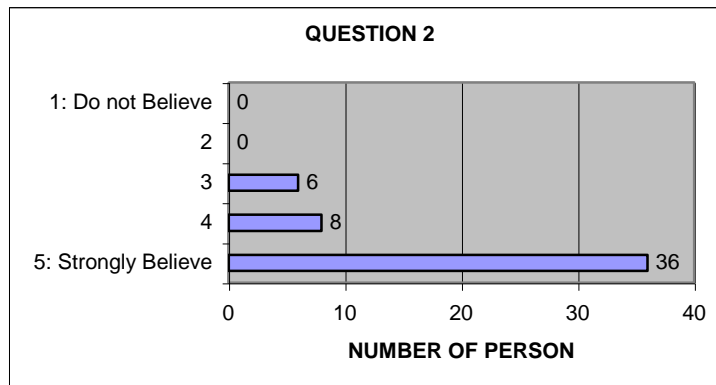
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QUESTION 1		
Yes, definitely.	23	46.00%
I would use it if the it is an obligation by government	19	38.00%
I would use it if the bracelet is comfortable	3	6.00%
I would use it unless I usually have to re-charge battery	5	10.00%
I would not use it	0	0.00%
Total	50	100.00%



QUESTION 2)

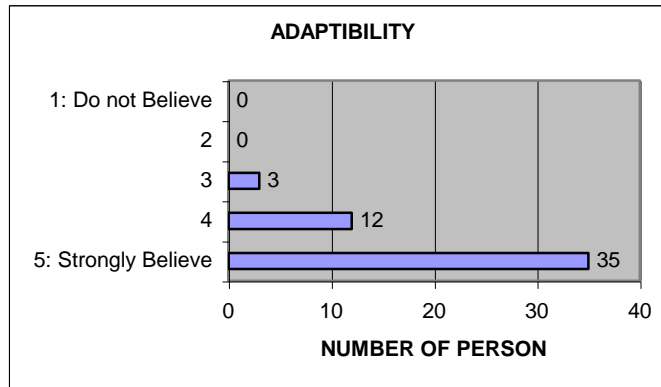
QUESTION 2		
5: Strongly Believe	36	72.00%
4	8	16.00%
3	6	12.00%
2	0	0.00%
1: Do not Believe	0	0.00%
Total	50	100.00%



QUESTION 3)

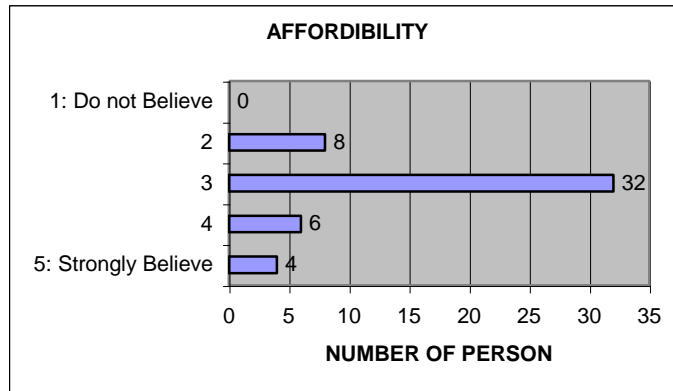
- ADAPTIBILITY**

ADAPTIBILITY		
5: Strongly Believe	35	70.00%
4	12	24.00%
3	3	6.00%
2	0	0.00%
1: Do not Believe	0	0.00%
		100.00%
Total	50	



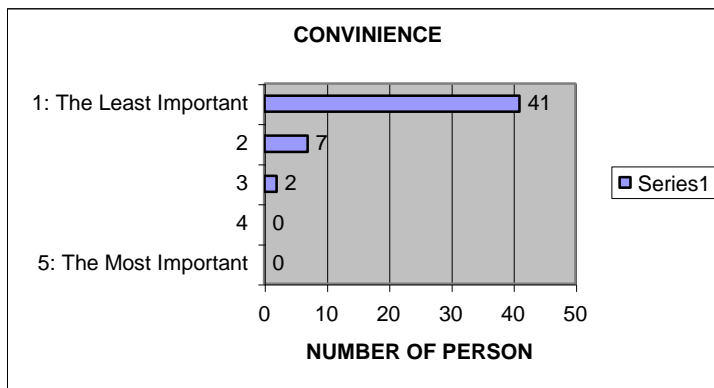
- AFFORDIBILITY**

AFORDIBILITY		
5: Strongly Believe	4	8.00%
4	6	12.00%
3	32	64.00%
2	8	16.00%
1: Do not Believe	0	0.00%
Total	50	100.00%



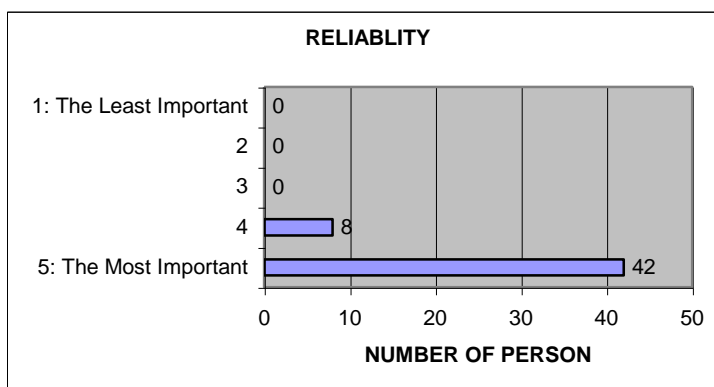
- CONVINIENCE**

CONVINIENCE		
5: The Most Important	0	0.00%
4	0	0.00%
3	2	4.00%
2	7	14.00%
1: The Least Important	41	82.00%
Total	50	100.00%



- RELIABLITY**

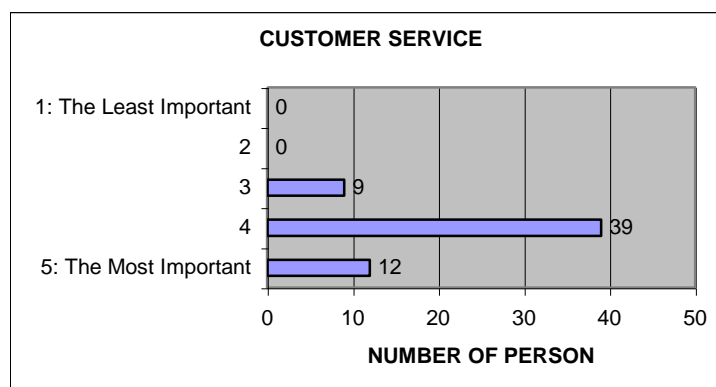
RELIABLITY		
5: The Most Important	42	84.00%
4	8	16.00%
3	0	0.00%
2	0	0.00%
1: The Least Important	0	0.00%
Total	50	100.00%



- CUSTOMER SERVICE**

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CUSTOMER SERVICE		
5: The Most Important	12	24.00%
4	39	78.00%
3	9	18.00%
2	0	0.00%
1: The Least Important	0	0.00%
Total	50	100.00%



Customer Assessment of Competitors

There is only one company in the USA “Smart Lock Gun” produces similar products to our “safe gun”. Hence, we decided to consider this and our competitors “Smart Lock Gun” that we had investigated in our literature survey & competition report.

Customer requirements of WHAT	S&D Co.	MAGLOC®
Adaptability: Do you think it is important being comfortable to wear that bracelet while you are using the gun?	4	5

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Affordability: The price should be kept as low as possible to allow faster market penetration.	5	4
*Convenience: It should be sold everywhere to have a wide public recognition.	2	2
Reliability: The system should prove to work properly for various conditions, and its battery life.	4	3
*Customer service: There should a customer service to inform people about the usage of the gun and for every technical problem on safe gun	1	1

Determining the HOWs

To improve our company ratings we determined our HOWs with the help of the customer assessment of competitors.

Number	Technical Descriptors of HOWs
1	Conducting more tests and demonstrations to verify the realization of our product under various conditions and make it even more reliable
2	Integrating the tags on guns
3	Trying to increase battery life

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4	Focusing on advertisements and guerilla marketing to establish higher public recognition
5	Set goals for developing a 24-hr customer service system

Target Goals of Technical Descriptors

HOW#1: Maximize or increase attained values

HOW#2: Achieve the target value

HOW#3: Maximize or increase attained values

HOW#4: Maximize or increase attained values

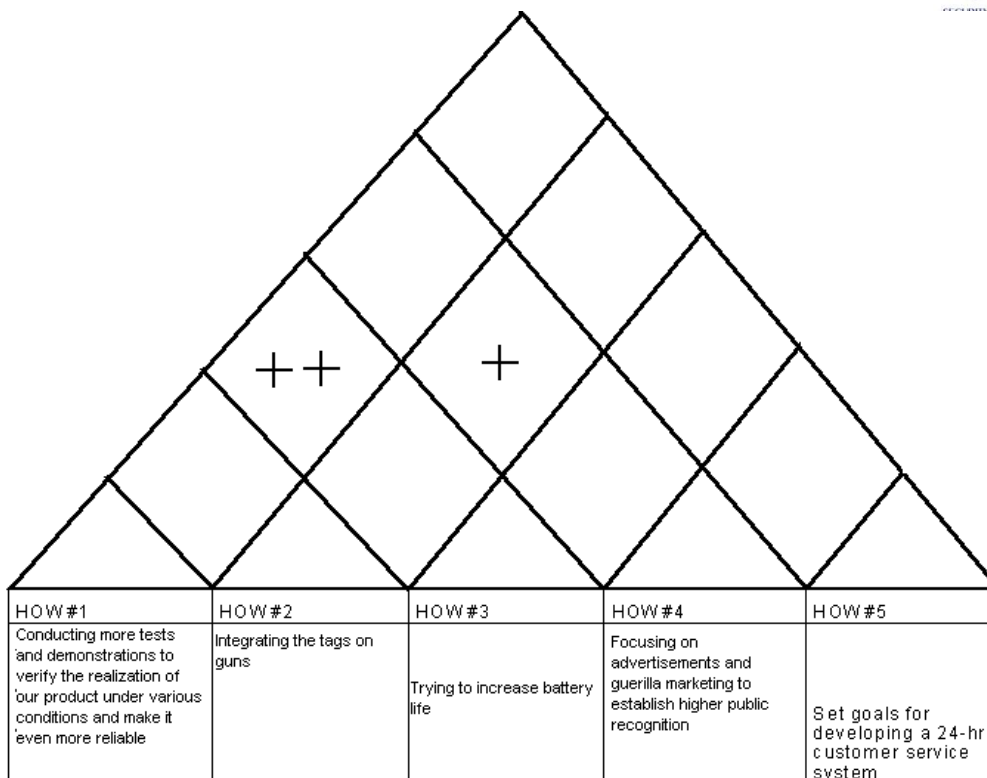
HOW#5: Achieve the target value

Symbol	Target Goal
↑	Maximize or increase attained value
↓	Minimize or decrease attained value
□	Achieve a target value

Correlation Matrix of HOWs

The correlation matrix of the relationship between the technical descriptors is the “roof” of the house of quality.

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Company	HOW#1	HOW#2	HOW#3	HOW#4	HOW#5
S&D Co.	4	3	3	4	3
MAGLOC[®]	5	5	4	4	4

MAGLOC[®] is a benchmark for HOW#1 since it is already in the market and it is built by professional company. We should work hard enough to reach their level of reliability as a start-up company. Similarly, **MAGLOC[®]** is again the benchmarks for HOW#2. As for HOW#3 since **MAGLOC[®]** use magnetic ring, they are better than us.

Technical Descriptors of HOWs						
Customer Requirements WHATs	Importance Ratings	1	2	3	4	5

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*Adaptability: Do you think it is important being comfortable to wear that bracelet while you are using the gun?	4	20	0	20	0	8
*Affordability: The price should be kept as low as possible to allow faster market penetration	5	0	15	0	5	0
*Convenience: It should be sold everywhere to have a wide public recognition	2	10	8	10	0	0
*Reliability: The system should prove to work properly for various conditions, and its battery life.	4	20	0	20	0	8
*Customer service: There should a customer service to inform people about the usage of the gun and for every technical problem on safe gun	1	0	0	0	0	5
Absolute Score		50	23	50	5	21
Technical Competitive Assessment		5	5	5	5	4
Weighted Absolute Score		250	115	250	25	84

After this survey, it shows that S&D Co. will catch the level of **MAGLOC[®]** on the issues of HOW#1, HOW#2 and HOW#3.

All in all, we believe that if S&D Co. is able to accomplish these target assessments it is very likely that we will attain a higher position in the market. After collecting all sorts of information from customer surveys, determining the benchmark companies and assessing our abilities to beat the competitive market this quality function deployment process helped us promote cross-functional understanding of our product at a great extent.

9.6. PRODUCT DEFINITION

General Information

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SECURITY & DEVELOPMENT COOPERATION

Policemen and private security employees have high-risk working environment because the criminals may steal their gun during an action. In short, they can be damaged by their own guns. Therefore, we are proud to create the product of the 21st century, called “Safe Gun”. Our aim is to make more efficient and powerful security system for guns in order to prevent unwanted damages during an action between security members and the criminals. Secondly, there are lots of children who shoot themselves accidentally by their parents’ guns while they are playing. Our product can be a solution for this kind of damages.

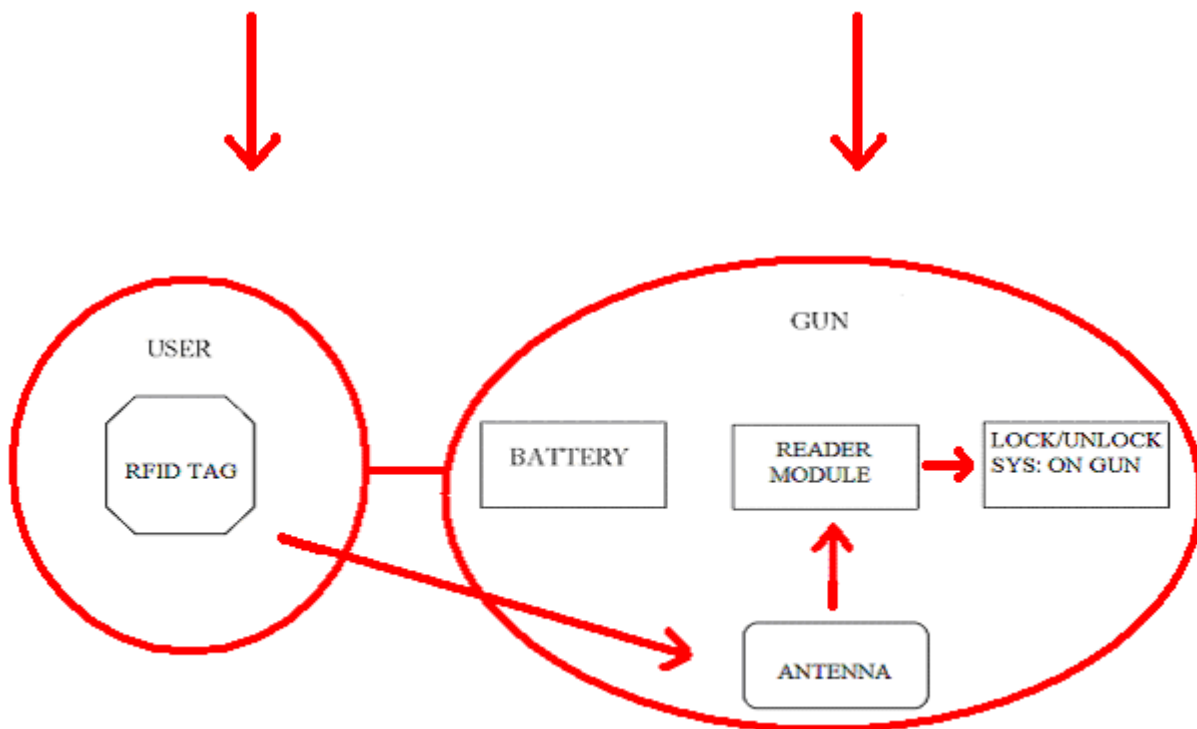
With the “Safe Gun”, criminals and other people cannot use security staffs’ guns because we managed to assemble a secondarily safety lock system. Hence, our lock system will not let anyone to fire the gun except its owner. The system will recognize the owner thanks to RFID (radio-frequency identification) tags that are implemented on the gun and the user’s hand or wrist. RFID technology contains at least two parts. One is an integrated circuit for storing and processing information, modulating and demodulating a radio-frequency (RF) signal. The second is an antenna for receiving and transmitting the signal. In short, when the owner takes the gun in hand, RFID tags will match and then the gun will be appropriate to use.

The actions, which are told at the beginning, will be prevented thanks to that technology. When a criminal steals the gun of security staffs, he or she cannot use the gun. In other case, the child will be safe when he or she finds and starts playing with the gun of his or her parents.

Function

Our system includes an RFID reader and an RFID tag, a lock system and a re-chargeable battery and also we need a gun. However, the gun is not included to our system because we will manufacture only a kit that makes a normal gun as “Safe Gun”. This kit will occur two parts; user

and gun. RFID tag will be on the user and it can be a ring or a bracelet. The other parts will be on the gun. The red circle on the gun is where we mount our kit.



1. Gun

The last bid of police headquarters was won by a Turkish company called SARSILMAZ in 2007. They produced 20000 guns called KILINC 2000 MEGA for police department. We are planning to mount our system on these guns because all policemen use them.

MODEL	KILINÇ 2000 MEGA
Caliber	9x19
Magazine Capacity	15
Barrel Length (mm)	114,5
Barrel Life (rnds.)	25.000
Barrel	FORGED STEEL
Effective Range (m)	50
Muzzle Velocity (m/sn)	350
Total Length (mm)	205
Height (mm)	141
Width (mm)	34
Weight (Empty Mag) (gr)	990
Magazine	Metal
Sights	3 Dot System
Grooving	6
Safety	SL-PS-HS
Finishing	CC - EC
Triger Action	DOUBLE
Line of Sight (mm)	157
Weight (W/O Mag) (gr)	890

The chart above shows features of this gun. We just need dimensions of it because we should decide for our kit's dimensions according to gun's dimensions. Dimensions of the gun are marked with red rectangle.

2. RFID Reader

- RFID Reader is a part that will be mounted on gun in order to unlock the system whenever it recognizes the RFID tag at a range about 12 cm. In order not to affect the appearance of the gun, we are planning to hide the reader in the hilt of the weapon.
- RFID reader should also be amounted when a problem occurs; hence, we are planning to assemble a hidden button in order to reach the reader. This control mechanism provides us to prevent unexpected problems that can occur.
- RFID readers has a specific frequency which is about 125 KHz because the system should be unlocked when the user get the weapon into his/her hand. We need a RFID reader that has short range because it should work when only the user holds the gun. Otherwise, it will be useless because ones who steal the gun can use it if it has long range. RFID readers which works at short ranges should have a frequency in KHz. Our specified range is 10-15 cm and it requires frequency between 100- 150 KHz.

3. RFID Tag

RFID Tag is an important part that should be carried by the user in order to activate the RFID reader, so the system unlocks. As we mentioned above, RFID reader and RFID tag should meet at a

range about 10 to 15 cm. Thus, we are planning to assemble a tag on an ornament of the user's hand or wrist, which can be changed whether the user is right handed or left handed.

4. Lock System

Lock System is the most important and complicated part of our project. This part will start working when the RFID reader recognizes the radio frequency. Otherwise, it appears offline.

We are planning to use a microprocessor that is mounted at the hilt of the gun. It decides whether the signal match or not. In order to get the signal, the kit has a little antenna that is assembled on RFID reader. The RFID reader sends signal to our microprocessor; hence, we would understand whether the tags are matched or not. If the tags do not match, it will send energy to a solenoid in order to keep the system lock. This microprocessor allows us to create a reader with little code or processor resources. A relay is activated for 1 seconds when you hold a RFID tag near the antenna.

- This microprocessor contains PCB parts, antenna.
- The supplied microprocessor contains the MCS Bootloader so we only need a serial port to (re) program the chip
- We are planning to assemble the solenoid under the original safety lock of the gun.

5. Re-chargeable Battery

Battery is a part of both our RFID reader and lock system because RFID reader needs voltage supply about + 4.6V through 5.4V. Also, lock system will need about 5V supply voltage.

- In order to drive our product, we are planning to use a battery that we will use in both RFID reader and lock system.
- This battery will be rechargeable like LI/ON batteries which the cell phones and laptops are using.

- Before using our SAFE GUN, it should be charged at least one hour and the battery should go on working at least ten hours. Therefore, if it's needed, carrying extra batteries would be important at operations.

The Physical Characteristics of SAFE GUN:

- The system should not increase the weight of the gun, redundantly.
- The lock system should not be damaged due to the feedback after shooting
- The system should spend minimum energy.
- RFID reader and tag must have short range in order to work more efficiently.
- The system should work at low and high temperatures without any problem.

Technical Properties:

- **Weight:** at most 1000 gr
- **Total Dimension(mm):** 60- 141- 205 (width- height- length)
- **Supply voltage:** 10V (5V for RFID reader, 5V for lock system)
- **Temperature:** -55 to + 125 Celsius degrees (heat of the kit)
- **Response time:** at most 1 seconds

Interface

- RFID reader: Zero-input
 - If RFID reader does not recognize a signal from RFID tag, It will keep unlocking the system

- The lock system is controlled by MCS bootloader which will be (re) programmed by a serial port.

Environmental Characteristics

- Designed for more than 5 years
- The battery usage time is more than 2 years.
- The system does not need renewal at least 4 years.
- The RFID tag will be changed from one ornament to another in term of the user's pleasure.

Standards

- TSE- TS EN 50357 standards for Evaluation of human exposure to electromagnetic fields from devices used in Electronic Article Surveillance (EAS), Radio Frequency Identification (RFID) and similar applications.
- TSE- ETSI EN 302208-1 V1.1.2 standards for Electromagnetic compatibility and Radio spectrum Matters (ERM);Radio Frequency Identification Equipment operating in the band 865 MHz to 868 MHz with power levels up to 2 W.