



## ***Security Communications Center***

# **Marketing Plan Team 3**

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# 1. Introduction

Marketing Plan report has been prepared on the purpose of outlining the strategies of the Security Communications Center (SCC) Company in order to market our new and innovative information technology product “Cher Ami”. Cher Ami is a secure messaging and location tracking system. It is developed for smart phones which have Android operating systems. Marketing Plan report is regarded as a crucial part of establishing our management operation strategies. It constitutes the utmost crucial part of our Business Plan together with the Organizational and Financial Plans.

Marketing Plan begins with a latest definition of product Cher Ami as a part of Introduction. It has been decided that two different versions will be serviced in order to reach larger customer groups. Primary version will be only a software application which enables users to see their location and send messages to each other on Internet channels which are designed according to SSL 3.0 and TLS secure web communications protocols. Premium version also includes additional physical equipment which encrypts all the shared data in addition to the software package of the primary version. The features of these versions are explained in detail under Product Definition part.

Main feature of our product is its security. Therefore, we have focused on the customer groups who give uttermost importance to their communication security. At the end our analysis we have defined two target markets: governmental agencies and civilians who cares about their business or private communication security. Profiles of these customer groups and buying decision mechanisms are scrutinized. The steps of our analysis and its results are expressed in Target Market part of this report.

The research and development stage of Cher Ami product is still an ongoing process. Its design has not been completely finished yet. However, design of the main blocks and determination of the component choices of the hardware product have been

discussed within the engineering group and concluded. The results have already been indicated in the Product Requirements and Specifications documents. In Product Design part, user interface sample figures of the software application, packaging of the product and physical features of our product with the sample sketches of our hardware prototype are presented.

According to the latest stage of our design and latest choices of the components, possible cost interval for the total cost of the items which will be used in the production of the hardware are analyzed. Other factors such as transportation, storage and production costs are also discussed. Together with the results of the cost analysis; critical for the revenue model, price ceiling and floor, pricing methods and strategies are examined. Results of these evaluations are given in the Price part. Under Distribution Channels subheading, the natures of the marketing channels to deliver our product to customers are discussed. As it has been stated above, we have targeted governmental and civil markets which are heavily separated characteristics which also reflect into distribution channels. Selected distribution channels are clarified in this part with their advantages over other possible choices and constraints comparing to other alternatives.

Successful advertising and public relations have vital importance for us. SCC is an emerging company with an innovative in the large information technology market; therefore, we need to determine promotion strategies. Our brochure samples, national and international exhibitions and fairs which can enable us to publicize our company and product in the sector, advertising strategies on Internet and mass media are discussed under Promotion subheading.

We could not find another product which services the same features that Cher Ami have. However, it is possible to find different secure communication companies. These competitors, their products & services are presented under Competition part. Furthermore, we have also expressed their positions in the market, prices, and features in comparison with Cher Ami.

Lastly, in sales strategy part, we are going to analyze especially who will do the selling. This question is answered partly in distribution channels by explaining how we choose the seller and how we decided it. Technical and logistic support will be clarified. After sale, technical guarantee service will be provided by our company.

## **1.1 Product Definition**

Secure Messaging and Location Tracking project can be called as a messenger program being run on smart phones (Android operating systems) and having the feature of enabling users to see the positions of each other on a map. All the information shared within the group is encrypted.

In this project, a portable cryptographic device, which encodes the data sent from the mobile device, will be designed. Public key encryption with RSA Algorithm will be used. The connection between the cryptographic device and mobile phone is done through Bluetooth technology.

A user interface, which displays the locations of the other users on a map, is designed. The location information is read from the integrated GPS chip inside the smart phone. Obtained coordinates are interpreted and users are demonstrated on the map with symbols. This user interface also enables the user to send and receive encrypted messages via this application. Together with the location information, the plaintext is sent to the cryptographic device via Bluetooth. Encrypted information is transmitted to the other users via a HTTP Server application.

The received and transmitted messages are stored during the session. Last few locations of the users are also stored internally in the program in case of a GPS or Internet connection loss. In such unexpected emergency cases, other users who still have the connection can reach the last location of the user who has lost his connection.

## **2- Target Market**

The target market we are going to analyze as a customer consists of two main public institutions Turkish Defense Industry and The General Directorate of Security (Emniyet Genel Müdürlüğü (EGM)). Firstly, Turkish Armed Forces, EGM and their R&D departments are examined. Then, in the second part their purchase procedure is explained.

### **2.1- Turkish Defense Industry**

In 2010, Turkish Defense Industry has accomplished the performance as showed below:

Defense Industry Direct Turnover: \$ 2.732.933.353

Defense Industry Indirect Turnover: \$ 3.487.427.831

Total R&D Expenditure: \$ 666.019.607

The percentage of Meet of Turkish Armed Forces' Needs: 52.1%

As it is declared by the Undersecretariat for Defense Industries (SSM), over the last 25 years since its establishment, significant achievements have been made in a modern national defense industry in Turkey, with notable results in certain vital areas. As a result of considerable dedication and efforts of local firms, key defense industry institutions have been established to meet the requirements of the Turkish Armed Forces locally. The local content ratio, the extent to which requirements are met locally, rose to 52.1% in 2010 and the Turkish defense industry has reached the phase where the groundwork has been laid for system integration capability and defense products can be developed locally.

Undersecretariat for Defense Industries (SSM), in the next phase, aims to reduce external dependence in critical subsystems/components/technologies determined in line with the requirements of the Turkish Armed Forces. In order to optimize the resources allocated to improve the technological infrastructure needed for the systems projects that involve procurement by means of indigenous local production,

and hence increase local content ratio. R&D Projects are compatible with the needs and objectives of main system projects, and that strengthen collaboration among the industry, small and medium enterprises, universities and research organizations. As indicated on the graph below, local content ratio is increasing steadily which means that welfare level of local firms is also rising.

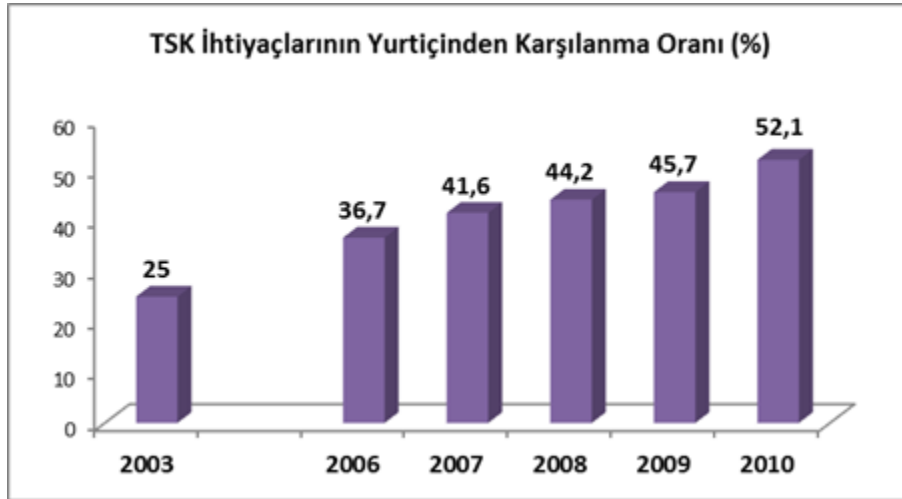


Figure 1 – Local Content Ratio

The charts below, based on data gathered by SASAD (Defense Industry Manufacturers Association), illustrate the progress of R&D expenditures Turkish defense industry over the years.

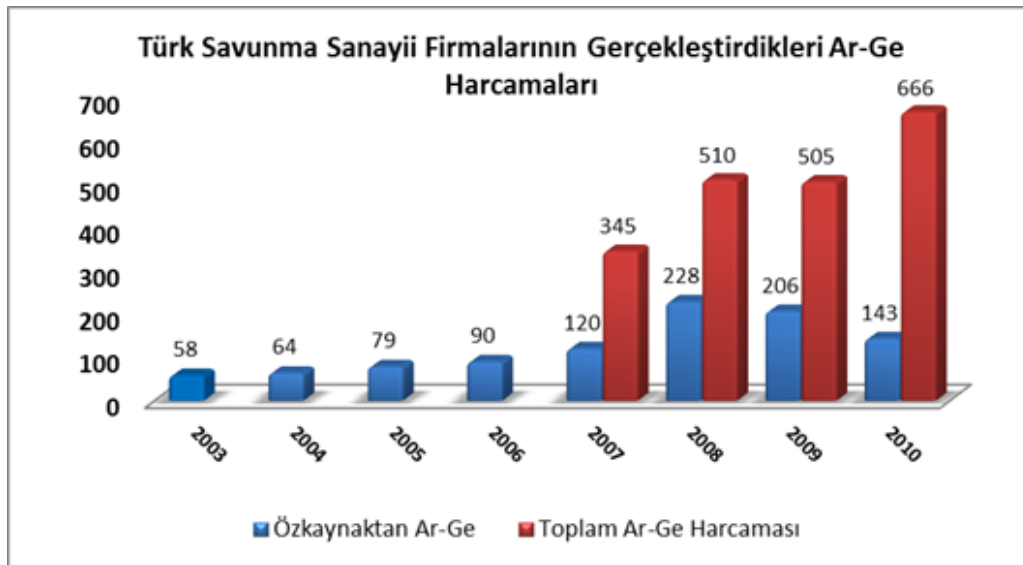


Figure 2 - R&D Expenditures Turkish Defense Industry

## **TÜBİTAK Public Institutions Research and Development Project Supporting Program (1007)**

Science and Technology Commission (BTYK) decided in national level, R&D will be funded by national budget and this will be coordinated by TÜBİTAK. The coded program 1007 is aiming to meet the needs of public institutions and come up with a solution to their R&D problems. Within the scope of the Program 1007, public institutions, universities, private organizations or private companies like ours are able to offer projects to SSM that they are planning to produce new innovative products. Defense research is the primary field to be supported by TÜBİTAK. In this sense, SSM and TSK (Turkish Armed Forces) can be called our customer.

There are many projects offered by small local companies to SSM and TSK. Under the TÜBİTAK organization, the sub research group generated called SAVTAG mainly focus on security technology. SAVTAG according to its deficiencies or needs of SSM and TSK development, encourage universities, small companies in private sector. The main object is to raise efficiency of defense power and bring advanced technology.

1007 coded R&D supports require using the method provided below in order to get the supports of SSM, MSB or TSK or to be contractor. As it is acknowledged in the websites of SSM, MSB and TSK, there are two options to negotiate with them. Firstly, these governmental institutions determine the project to be done to meet their needs. Their R&D departments analyze their needs and generate projects. Accordingly, they start to search firms or local companies that can operate together or on behalf of them. SSM's R&D departments prepare documents of project requirements defining (PİTD). Those explain the needs and required features of companies that governmental institutions look for.

Second option is that projects can be offered by private companies independently. The proposals of companies are suggested to public institutions. Then, SSM, MSB or TSK decides to future of those projects. If these are not accepted, the negative result



is sent to the companies. However, if it considered as necessity or development for them, detailed offer is required to submit to get second step. Documents defining project requirements (PİTD) are prepared to determine all concepts and features of the project. Then, SSM, MSB or TSK announces a tender to select which companies will be worked with. Although the company wins the tender, this is not the end of the procedure. The protocol meeting must be satisfied. If it cannot be completed, the company who won the tender is eliminated and the tender is announced again. The company which overcomes these steps signs protocol with SSM, MSB or TSK and applies to TÜBİTAK with 1007 project form. The project and company is discussed in SAVTAG and it appoints an official to supervise the project. If the project and company satisfy the demands of TÜBİTAK, then TÜBİTAK, contractor and SSM, MSB or TSK signs triple protocol. This means the company grabbed the project and it starts.

Our product “Cher Ami” is durable good, thus the public institutions or any other customers buy Cher Ami once and our expectations suggest that they will use Cher Ami at least 3 years. The purchase frequency is dependent on the success of the product in operations. Since public institutions make generally annual plans for their budget, annual purchases should be tried to increase to ensure we sell enough number of products in a year. Since we are so innovative company, we plan to advance Cher Ami in the future. In the future plan when we produce Cher Ami2 that will be shaped according to the customer demands, then the existing customers may want to update their Cher Ami and buy our product a second time.

## **2.2- The General Directorate of Security**

The strategy development and planning groups which is included within the scope of The General Directorate of Security (Emniyet Genel Müdürlüğü (EGM)) creates new projects as a result of determining the current situation of the needs in security. These strategy development and planning groups actually conduct their activities as a subunit of the Directorate of Strategy Development Department (Strateji Geliştirme Dairesi Başkanlığı). These groups receive supports from the experts

which are related to the subject of the projects. In addition, the needed equipment or materials are notified by the supreme boards such as directorate of IT department, security department, strategy development department, anti-terror department. The management of these departments notifies the strategy development and planning groups about their desires, needs and how the desired or needed materials (equipment) should be.

The decision for the purchase of new technologies or equipment first is determined by the strategy development and planning groups. These accepted (firstly offered by the companies or project experts) or newly created projects are then discussed and evaluated in analysis groups which are another branch of the EGM. After these analysis groups make decision about the projects, these projects or offers are directed to the Strategy Development Board (Strateji Geliştirme Kurulu) which consists of the supreme managers in central agency of EGM. The last decision is made in the assembly of this Strategy Development Board.

In the light of the above information, multiple strategies can be implemented for the marketing of our product, Cher Ami for secure messaging and location tracking. One of them is to inform related department's experts or directors to convince them that Cher Ami can be used as a technological and secure application for the clandestine operation to capture criminals or terrorists. Another option for marketing this product is to make presentation to the strategy development and planning group. Strategy Development and Support Branch Office (working as a subunit of the Head of Major Command Control Center Department) also can be evaluated as the aim of our marketing plan because this branch office is responsible for the regular and active working of IT and hardware systems, the determination and provision of the hardware/software needs of the EGM. The key point is to impact the officials in this branch office to make them aware about our product and show them how necessary our product is via presentation or using our contacts in EGM.

EGM appropriates funds annually for all transactions or activities. For the funds of the purchase of the goods and services EGM appropriates 164.051.432, 00 TL

budget in 2011 but this budget is only purchase of the goods and services which is related to the area that our product will be used (EGM divides the funds into different categories such as international programs, traffic programs, human resources, education infrastructure and organized crimes (smuggling, illegality, terrorism)). If EGM appropriates funds to purchase our product for all EGM officials, this will be outstanding for us. However, we expect that EGM will purchase this product to be used by special operation forces as a first step.

The purchase frequency is dependent on the success of the product in operations. Also, since EGM makes generally annual plans for their budget, according to their budget we are aiming to sell maximum number of Cher Ami in a year.

The payments of the purchased products are completed within 20 work-days after all negotiation processes are completed. Until all transactions are completed the unit or department (which makes the last decision) of EGM reports the cost of the product and transactions to the Tender Affairs Department of EGM and this department fulfills the mission of the determination of whether the purchased product is worth the desired money. Direct Supply and Accrual Department of EGM is also another important department which investigates the approximate cost of the procurement of the requested goods or services, bills (makes out an invoice) for the purchased goods or services and sends the documents to the accruals for payment of the progress billing of goods or services.

## **3- Pricing Decision**

Cher Ami's pricing decisions are affected both by internal company factors and by external environmental factors. Internal factors affecting pricing include the company's marketing objectives, marketing-mix strategy, costs and organization.

### **3.1- Internal Factors Affecting Pricing Decisions**

Before setting price, we must decide on its strategy for the product. Since we have selected its target market and positioning carefully, then the marketing-mix strategy, including price, will be fairly straightforward. When we (SCC) decided to produce Cher Ami to compete with applications in the Android market, this required charging a competitive price. Thus pricing strategy is largely determined by past decisions on market competition. At the same time, we sought additional objectives. We have clearly defined our objectives and it helped to find it easier to set price. Common objectives are survival in the Android market, profit maximization, market-share maximization and product-quality leadership which is most important objective for us in order to be called as secure.

As we declared before, we want to achieve product-quality leadership. This normally requires charging a high price to imply such quality and the high cost of R&D. This will be reflected in price of the secure application Cher Ami, because our product differs considerably from its competitors by its security. However, when we enter to Android market the price can be reduced temporarily to create excitement for a product or to attract more customers into our product.

Price is only one of the marketing-mix tools that we use to achieve our marketing objectives. According to marketing-mix tools, the price decisions coordinated with product design, distribution and promotion decisions to form a consistent and effective strategy. These variables affected the price. The product design shown in the design part should create good impression which leads to more cost than we expected. As the distribution of our product discussed in distribution channels part

completely, it is clearly interpreted that this is not so costly for us. Therefore, it does not lead to change in price considerably. The promotion part explained our promotion strategies deeply, and it affected the price.

The costs determined the floor for the price that we are going to charge the customers for Cher Ami. We want to charge a price that both cover all its costs for producing, distributing. Our company's cost is the most important element in its pricing strategy. The costs take two forms, fixed and variable. Fixed costs which do not vary with production or sales level include our office, staff in the office, warehouse expenditures, computers. Variable costs vary directly with the level of production. Each Cher Ami produced involves a cost of FPGA chips, battery, plastic, packaging, Bluetooth chips, Altera, regulators and other inputs. We have also database, website domain costs that we have to pay in each year. These costs tend to be the same for each unit produced, their total cost varying with the number of units produced. Total costs are the sum of the fixed and variable costs for any given level of production. We want to charge a price that will at least cover the total production costs. Therefore, we decided to sell Cher Ami's hardware version from \$100. The detailed costs are explained in the manufacturing part.

### **3.2- External Factors Affecting Pricing Decisions**

The pricing decision is affected by external factors such as the nature of the market and demand, competition and other environmental elements.

"Whereas costs set the lower limit of prices, the market and demand set the upper limit."(Kotler, 2005) before setting prices, we tried to analyze relationship between price and demand for our product. In this section, we explain how the price-demand relationship varies for Android market and how buyer perceptions of price affect the pricing decision. For our software application the market is almost perfectly competitive. Under high competition, our market consists of many buyers and sellers trading in a nearly uniform product, however we have some superiority to affect our price against market price. As we introduced trial version of Cher Ami which is directly competitive with the products in the market has same price with

market which is 1.99 US Dollars. “In a perfect competitive market, marketing research, product development, pricing, advertising and sales promotion play little or no role.”(Kotler, 2005) Thus, in this market, we spend relatively less effort on marketing strategy.

In the end, the consumer will decide whether a product’s price is right. “Pricing decisions, like other marketing-mix decisions, must be buyer-oriented. When setting prices, the company must consider consumer perceptions of price and how these perceptions affect consumers’ buying decisions.” (Kotler, 2005) The consumer perception is external factor which can be analyzed properly after sale.

“Most companies try to measure their demand curves by estimating demand at different prices.” (Kotler, 2005) Our estimations are depends on type of our products and their markets. For the trial version we are in perfectly competitive market. Thus, pricing decision depends on market price. When we implement security in Cher Ami, we make difference and we are the controller of pricing decision. Therefore, we can add extra price to product.

Price elasticity of demand is one of the important variables that we need to know to observe how responsive demand to our products, namely, the trial version as well as the secure Cher Ami, will be (in percentage) to a change in price (again in percentage). To analyze in detail, it is needed, first, to have a clarification of the term. Price elasticity of demand is a measure of the sensitivity of demand in relation to price changes. Therefore, on the grounds of the nature and the formula ( $\% \text{change in quantity demanded} / \% \text{ change in price}$ ) of the term, we have realized three possibilities one of which is a hard (or very little) change in demand with a change in price, that terminologically refers an inelastic demand curve. In such cases, decreasing price is not an efficient and rational option under the profit-maximizing purposes for our firm, since it won’t bring about more and more our product to be sold. Therefore, increasing the price, without sacrificing much quantity to be sold (as inelastic demand curve naturally requires) could be the policy. On the other hand, it is also probable that, a small change in price could give rise to greater

change in demand; which, contrary to the first assumption, refers an elastic curve. This time, a little decline in price level as an efficient policy, brings much more quantity to be sold which, in return, not only compensates for the loss caused by the tiny price fall, but, may even presumably, generates more profit thanks to greater proliferation of the sold-quantity. There is one more option that is the percentage change in absolute value to be equal, or simply the ratio (of the formula) to be -1 [unit-elastic] (the minus sign refers to inverse relation between price and quantity). Under such a situation, our total revenue stays the same no matter the policy, namely, decreasing or increasing the price that is selling fewer items, but at a higher price preserves the same total revenue.

So, what determines the price elasticity of demand? Generally, buyers are less price-sensitive when the product they are buying is unique or when it is high in quality, prestige or exclusiveness. They are also less price-sensitive “when substitute products are hard to find or when they cannot easily compare the quality of substitutes. Finally, buyers are less price-sensitive when the total expenditure for a product is low relative to their income or when another party shares the cost.” (Kotler, 2005) Recently, by means of the Internet and other technologies instant price comparisons have increased consumer price sensitivity. Marketers need to work harder than ever to differentiate their offerings when a dozen competitors are selling virtually the same product at a comparable or lower price. Thus, companies need to understand the price sensitivity of customers and their trade-offs between price and product characteristics. We, for this very reason, distinguish our product by implementing security in Cher Ami, compared to trial version and competitors’ product.

As a result, for the only application version of Cher Ami, the trial version of our product can be considered as under the (almost) perfectly competitive market circumstances, wherein the demand curve is (almost) perfectly elastic. It is, therefore, required our Cher Ami is priced at \$1.99 just as other competitor prices. However, after implementing the security as an additional qualification to our product Cher Ami, we, from this point on, distinguished our product from other

competitors. As a consequence of this difference, the price should not necessarily be the same as others, because there is no longer (almost) perfectly competitive market and, accordingly, no longer a perfectly elastic curve. So, additional quality of security means extra cost and this necessitates an increase in price as well. The new price that we decided for Cher Ami with security is \$4.99 rather than the trial version priced at \$3 less.

For Cher Ami's hardware version the pricing decision mainly depends on cost covering not only competitors' pricing and it will be \$100. The costs are declared in the manufacturing cost part. When we revise the costs, 100 US Dollars covers our costs.



## 4- Design of the Product

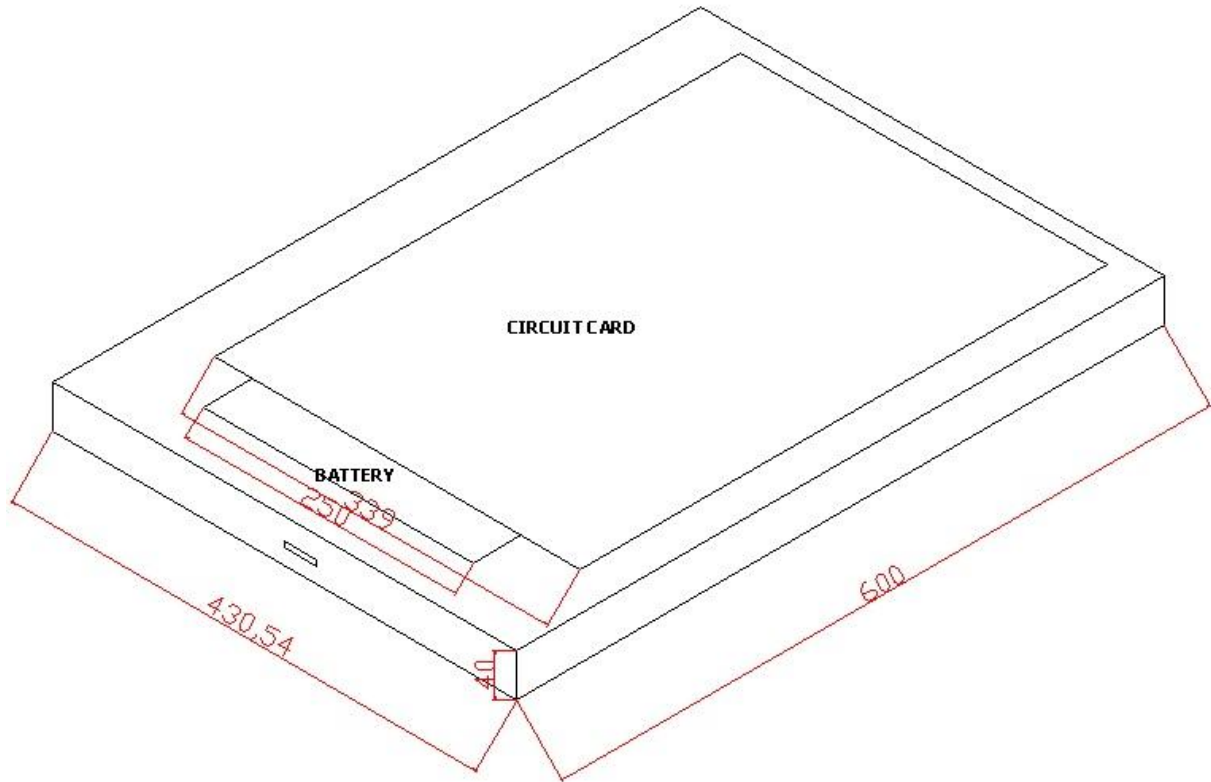


Figure 3 – Technical Drawing of the Product

Our hardware whose dimensions are 43,054, 60 and 4 cm, has battery, circuit card, a button whose function is to turn on the device and a hole which is used for recharging the battery. In order to place the circuit card and battery properly, the hardware should have 43 cm. and 60 cm. dimensions.

The battery provides power of the hardware. Its dimensions are 1.06 cm, 2.50 cm and 4.88 cm. The battery is placed under the circuit card in the ground level of the hardware. The hole whose function is to recharge the battery is placed very close to battery and the side which is seen in the picture.

The circuit card is main part of the hardware. It includes many different tools such as FPGA chip and Bluetooth chip. Bluetooth chip has 10 capacitors, 3 inductors, 2 crystal oscillators, 1 resistor and 1 feeler. FPGA chip has 11 capacitors, 7 resistors, 2 inductors and 2 diodes. Dimensions of the circuit card are 1 cm, 3.39 cm and 4.80

cm. There are 1.80 cm space between Bluetooth chip and FPGA chip in order to enable the hardware to stay in possible temperatures.

In addition to these there is a button which is used to turn on and turn off the hardware. This button is placed in the side which is not seen in the picture because of the perspective.

#### **4.1- Packaging and Labeling**

Packaging is one of the most significant issues which will affect attractiveness of our product and it will directly have big impact on the number of sales. Because our product is an electronic hardware, our package should protect and preserve our product not to be broken or spoiled. We will provide sponge coats for the users, lots of extra cushioning and all the cartons will be sturdy, there will be enough space between our hardware and the carton in order to obtain secure environment.

Because the product can be bought by a user who is from anywhere in the world, the package of the hardware should be safe against any accident possibility. The package will have 2 layers of sponge coat and a layer of bubble protector. It will also have a lot of extra cushioning in the package because cushions have an important role to be safe. The carton of package also will be hard enough to protect the tool.

In addition to these, in order to be more and more attractive and to convince people and companies for that the product will be handy for the security issues, the outmost carton package will have some small photos which give tips about the functionality of the hardware, some explanations in different languages about the product, a full photo of the hardware of which the users can see all the functionality. Because most of the users give very big importance to label of the product, it should include knowledge about the product as much as possible and the label should impose impressive ideas on the customers. The outmost package will include the logo of our company Security Communications Center (SCC) and the hardware (Cher Ami) as well.

In the package, there will be a user manual which explains all the functionality of the product for the users in 4 different languages (English, Turkish, Spanish and German). This user manual has an important role for the buyers to understand and use the product easier. By the manual, all the functionality of software and hardware can be used confidently.

## **5- Distribution Channels**

We are planning to sell our products directly from our own warehouses as the retailer in the future projection. This will decrease our costs because we are planning to use part of our office as a warehouse. For the start-up period, our office is large enough to store our product; it means that we do not have to rent extra office that is only available for warehouses. Indeed, we already prepared one of the office rooms to store with shelves from wall to wall. Since our products are electronic device that are vulnerable to moisture, we have taken necessary precaution to protect them against moisture by using insulating materials.

The Internet allows us to reach large areas quickly. We will sell the product through our own website. Our product' software part will be sold on android market if the customer does not need hardware part. The hardware component will be sold on our website. Since hardware only works with software application, we will not charge the customer who buys hardware with extra cost for software. A customer cannot see the product before buying via e-commerce but on our website the comments of existing user will be provided in order to convince potential customers. The customers of e-commerce will be charged with the price of the product and shipping costs. Additionally, Android market provides application ratings to show customers' satisfaction for the software part which will be put on Android market.

On the internet, there are lots of famous commercial websites which has about millions users. The most famous websites are [www.sahibinden.com](http://www.sahibinden.com), [www.gittigidiyor.com](http://www.gittigidiyor.com), [www.sanalpazar.com](http://www.sanalpazar.com) . Those are able to reach a lot more people than our SCC's website can. Therefore, we are planning to sell through these websites which provide opening store without any cost.

Most of the sales will be through personal contacts and online orders. The distribution of the product will be done by a cargo company. After the research about the cargo companies, it is found out that price of the delivery of one unit of our product will be around 5 TL but Yurtiçi Kargo makes 35% discount to their contracted customers. Therefore, the cost of cargo per our product with Yurtiçi Kargo is about 3, 30 TL. Customers who buy our product will pay the cost of cargo. This strategy works for the best for SCC since there will be no cost for our company and there is no need to allocate a distribution budget.

We will not distribute our products via distributors and wholesalers or retailers in the future even after the company is profitable enough. According to our company' decision, we considered this distribution as risky so, it may lead to lose confidence of customer against us.

## **6- Promotion**

Customer profiles and buying decision procedures of these groups are examined under Target Market title. As it can be obviously observed in Target Market analysis, almost all characteristics of these groups are quite different. Therefore, we need to develop separate promotion approaches for both of these groups. In this part, implementations of different promotion alternatives in order to reach these customer groups are discussed considering the customer profiles. Mainly the discussion is on the civilian users; however, attention to security and defense industry fairs is discussed primarily on the purpose of increasing the recognizability of SCC and Cher Ami among the decision makers of the governmental agencies.

### **6.1- Media and Outdoor Advertising**

Selection of a media or an outdoor advertisement method should be dependent on its performance. Performance can be measured on two perspectives: coverage and frequency. Coverage is the measure of the percentage of the target customers can be reached and frequency is related with the creation of minimum required number of opportunities to see in order to create an impact on the target customers [1]. Usage of media and outdoor advertising strategies are evaluated according to these criteria.

It has been evaluated in Target Market section; buying decisions are made by high rank officers in governmental agencies. It is highly questionable to state that these officers can be reached by common advertising strategies such as media advertising on TV, radio, newspapers and magazines or outdoor advertising strategies such as usage of billboards and posters.

We have identified civilian users who give significance to their business and private communication security. Therefore, it is important to focus on the coverage of these customers. Using billboards, daily newspapers or broadcasting on national TV or radio advertisements may assure the coverage of these users; however, this would

be a very inefficient choice considering the high costs. Instead, we may use business newspaper, magazines such as Capital and Economist and TV Channels Bloomberg HT and CNBC-E. However, considering that the advertisement frequency to reach customers for our new innovative product brings high advertisement costs.

Another major factor can be stated as the questionability of the influence of these advertisement methods on our customer profile. It can be advocated that media and outdoor advertising may enable us to reach large masses and increase the public sensitivity on the communication security. However, this is a very cost – inefficient way. Instead of this approach, we should be available when a user demands a communication security product. Due to these reasons we discard the usage of media and outdoor advertisement option for our products.

## **6.2- Brochure**

A sample brochure has been prepared. These examples are given on Figure 4 and Figure 5. After the prototype is ready, these brochures will be updated. These are the first versions and it is targeted to develop these designs and put more attractive and professional designs. The information in the brochure is taken from the Preliminary Design and Product Specification Reports. The brochure sample is taken from a website [2]. It has been designed according to A4 paper size dimensions.

Brochures are important parts of our promotion strategy. We desire to use brochures for the promotion of our products and to attract the attention of our customers. We believe that brochures can be quite powerful tools for the initial advertising of SCC and Cher Ami in business and community involvements such as exhibitions and fairs. In this perspective, brochures are especially influential on the civilian customers. As it has been indicated before, this brochure is only a sample. Once permanent business office is hired and website is constructed, our telephone and fax numbers, company e-mails and website will also be put on these brochures. In this design, only sample address information is given.

Cost of imprinting A4 Size 170g colorful double sided 5000 brochure items is 170 TL [3]. This number can be regarded as acceptable considering the benefits. In 2012,

following the completion of the first prototype development process, we are also planning to start to prepare company - product catalogs and to imprint corporate identity items such as business cards and envelopes.

### **6.3- Direct Response Advertising – SCC Website**

Our website should take crucial part in promotion strategies. It will not be an ordinary company website whose contents are only the information related with SCC and products. We design it to be a secure communication portal where people can create account, receive important news, gain access on some restricted content (see Trial Version subheading) and product information. This website can be administrated under the control of our engineering group and volunteered members of the portal. It is a very cost – effective and influential way of reaching customer profile.

As a part of the portal, we can create e-mail lists and send the members of our portal electronic newsletters related with the latest developments of SCC and news on the topics of communication security. It is certain that these lists can be expanded to include more people who are interested in the communication security topics. Mailing and text messaging can also be other tools of direct response advertising. They have certain costs; however, their superiority to influence the customers in comparison with e-mailing is open to the discussion. Old customers may feel special and regard it as an act of kindness and gesture if they receive some mails with some presents from SCC. This may also be regarded as a way to protect the customer interest on the company.



## CHER AMI

### Product Definition

Secure Messaging and Location Tracking project can be called as a messenger program being run on smart phonand having the feature of enabling users to see the positions of each other on a map. All the information shared within the group is encrypted.

### Cryptographic Device

In this project, a portable cryptographic device, which encodes the data sent from the mobile device, will be designed. Public key encryption with RSA Algorithm will be used. The connection between the cryptographic device and mobile phone is done through Bluetooth technology.

### Software

A user interface, which displays the locations of the other users on a map, is designed. The location information is read from the integrated GPS chip inside the smart phone. Obtained coordinates are interpreted and users are demonstrated on the map with symbols. This user interface also enables the user to send and receive encrypted messages via this application. Together with the location information, the plaintext is sent to the cryptographic device via Bluetooth. Encrypted information is transmitted to the other users via a HTTP Server application.

### GPS

The received and transmitted messages are stored during the session. Last few locations of the users are also stored internally in the program in case of a GPS or Internet connection loss. In such unexpected emergency cases, other users who still have the connection can reach the last location of the user who has lost his connection.

## SECURE MESSAGING AND LOCATING TRACKING SYSTEM



## SECURITY COMMUNICATIONS CENTER



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## SECURITY COMMUNICATIONS CENTER CHER AMI



Mehmet Melih Degirmenci  
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Figure 4 – Sample Brochure Front Page

## Product Specifications:

### Functional and Performance

Hardware component communicates with the smartphone via Bluetooth connection. When the user desires to send information, hardware component receives the plain text from the phone, encrypts it and transmits the cipher text to phone.

Bluetooth range is at least 3-5m. Bluetooth device should be qualified to work nearby a Wi-Fi device without interfering with it.

The encryption method is Public Key Cryptography with 1024-bit length keys.

### Software Features:

The size of the software is less than 10 Mb.

A message will contain maximally 300-characters in the message window. An example of a message window can be seen on the left figure.

In the group conference mode, the number of people will be constrained maximally to 10 people.

The application will enable the users to see others' location on the map starting from the 10 meters distance. Nevertheless, the users will have the option of scaling with 100 meters, 1 kilometer, 10 kilometers, etc. to only track the people in the range of those distances from the user as it is seen in figure-2 (Users' photo, longitude and latitude information -by assuming the user's position as zero point- also can be seen when their location is clicked).

If the battery of the encryption device is run out, encryption will be done directly using smart phone until the battery is recharged.

Estimated locations which are supplied from cell towers will have a precision of 100 meters in urban areas and 1 kilometer for rural areas. A group consists of 10 person maximum.

Whether a person is online or offline will be indicated with different colors.

There will be five different screens in application including login screen, map-message screen, add-join group screen, option screen, help screen.

### Weight and Height:

The weight of the product does not exceed 125g.

The dimensions do not exceed 80mm for length/width and 40mm for height.

### Power Supply:

Li-Ion or Polymer Li-Ion rechargeable batteries are used. Battery life must let at least 4,5 hours of continuous use and standby time is over 80 hours.



Figure 5 – Brochure Back Page

## 6.4- Trial Version

As a tool of promotion, limited version of Cher Ami may be distributed to the customers. This can be applied only for the software version. This can be called as a trial version of Cher Ami which is limited in terms of usage period and features. Usage period can be about 10 days and all members of the SCC portal can download this limited version and use it only for one smart phone and only for 10 days. The usage period restriction can be lifted with a small amount of charge such as 1.99 US Dollars.

Limited features of the trial version are listed below:

- In the group conference mode, the number of people will be constrained maximally to 3 people. In Premium version, the number of users who can join to this mode is 10.
- Last 10 locations of users will not be hold in database and users will not be able to see location of others even if they are offline. In Premium version, these data are hold. This restriction prevents trial version users to create extra payload on the server.
- Trial version does not apply web security protocols. In other words, it only offers users to try the interface of the application, to receive and send messages without encryption and to see other users' location.

It is important to indicate that this trial version does not require an extra workload. It is a very simplified version of Cher Ami. It mainly targets to increase the recognizability of the company and the product. Trial version users will be a member of SCC portal, will be in our e-mail list and can be reached using direct response advertising. Furthermore, we can still keep the option of selling this simplified product. In other words, we can still make money on our advertisement.

To exemplify, this trial version can be quite useful for a mother who wants to see the location of her child. This mother may be business woman who cares about her communication security or a simple housewife. In first case, we managed to reach a customer from our target market by selling her a service. In the second case, we are still earning money and increasing our public awareness.

## **6.5- Business and Community Involvements**

International and national exhibitions, fairs or conferences in information technologies are great opportunities to expand our customer and partner network.

CeBIT Eurasia: CeBIT is a very prestigious trade fair organized in Hanover by Deutsche Messe AG. CeBIT Eurasia is organized in Istanbul by the same group. It targets to reach the emerging new markets in the region of Eurasia. It is divided into four separate parts where the customers and producers can meet. These four different main areas are CeBIT Pro (Business), CeBIT Gov (Governments), CeBIT Life (Unprofessional customers), CeBIT Lab (Developers)[4].

International Defense Industry Fair (IDEF) [5]: It is organized in İstanbul every year by Turkish Armed Forces Foundation. Next year 11<sup>th</sup> IDEF will be organized. Almost all of the defense industry companies in Turkey participate in this organization. Governmental agencies are visiting this fair. It is a great opportunity for SCC to present Cher Ami and capabilities of the company.

International Conference on Telecommunications: It is organized under the sponsorship of IEEE (The Institute of Electrical and Electronics Engineers) in a different country every year. 18<sup>th</sup> ICT 2011 was held in Southern Cyprus region and 19<sup>th</sup> ICT 2012 will be held in Lebanon. Registration Fee is 470 Euro per person [6].

## **7. Competition**

Cher Ami is a product which brings together two very hot and trendy topics of communication technologies market: smart phones and security. In this competitor research, different communication technologies similar to our product are worked on. In these analyses; positions of the competitors in the market, features of their products and differences of Cher Ami from these products are explained.

In information technology market, we could not find any other secure messaging and location tracking product which is designed for smart phones. In other words, there does not exist a single messaging and location tracking smart phone application which also has security concerns. However, there are many messaging and location tracking programs on the smart phone application market. In addition, many different encrypted phones or recorders types exist in the telecommunication market. However, these are not smart phones.

### **7.1 Location Tracking & Messaging Applications without Security Features**

The products given this part are small software applications. They do not need external hardware components. They do not possess security features. We do not regard these products as direct competitors in our target markets since these companies do not focus on secure communications products; however, they constitute a significant portion of the smart phone application market. Therefore, we decided to evaluate these products as a part of our marketing research. It should also be noted that some of these applications are developed for iPhones. Currently, we are designing Cher Ami as an Android operating system application. An application version which is designed to be run on Android Operating System cannot run on iPhones, and vice versa. However, these markets are not constant. Companies are capable of modifying their applications for different operating systems; therefore, a company which designs applications for Apple products may also expand into Android market. Therefore, they should also be evaluated as possible future competitors.

There are thousands of different applications developed for messaging or location tracking usage. In this part, only some of the important examples are given.

### 7.1. 1 GPSMS Lite

GPSMS Lite is an iPhone application which allows its users to send their location with a short description to a person in his contact list [7].

A user interface image is also given on Figure 6:

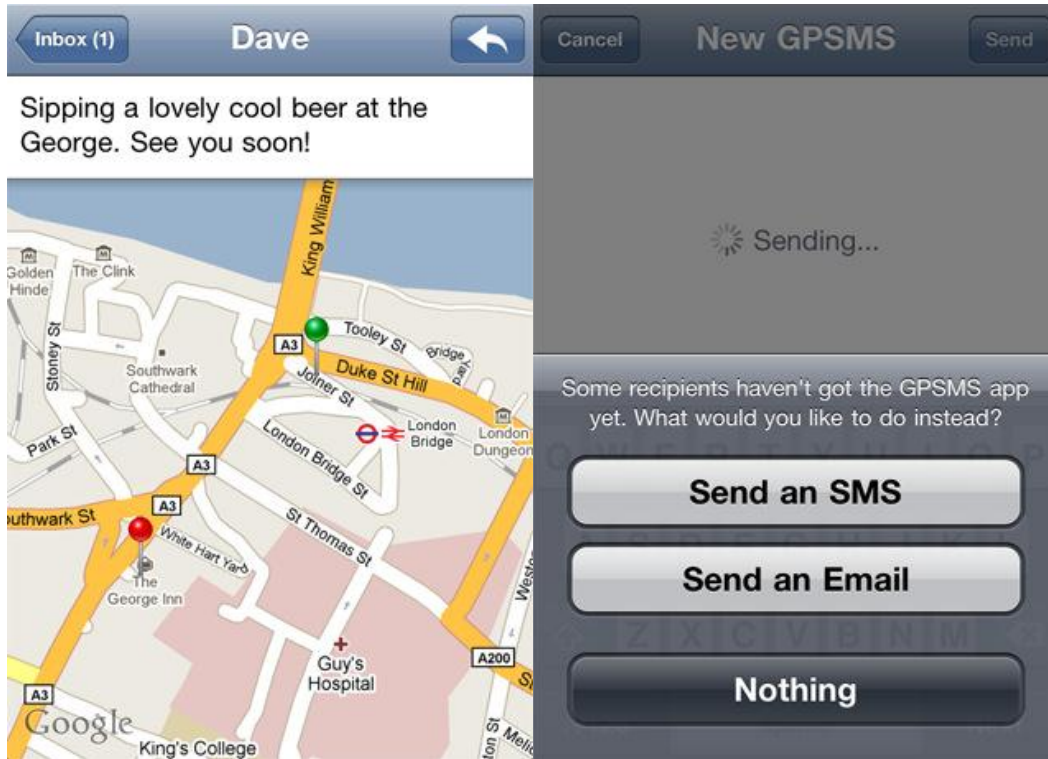


Figure 6 – GPSMS Lite [7]

<p><b>Advantages of Cher Ami over GPSMS Lite</b></p>	<p>GPSMS Lite does not possess any superiority over Cher Ami in terms of software features. Cher Ami can implement all capabilities of GPSMS Lite.</p>
<p><b>Disadvantages of Cher Ami over GPSMS Lite</b></p>	<p>GPSMS Lite is a freeware application.</p>
<p><b>Where Cher Ami differentiates from GPSMS Lite?</b></p>	<p>GPSMS Lite is an application developed for general usage. Cher Ami contains more features including providing security.</p>

### 7.1.2 GPS Tracking and Life360 Family Locator

GPS Tracking [8] and Life360Family Locator [9] are two different GPS Location tracking applications which have similar features. Both are compatible with Android

Operating System. Both are very popular applications. According to Android Market statistics, GPS Tracking has downloaded between 1000000 and 5000000 and Life360 Family Locator has downloaded between 500000 and 1000000. These are specialized products for family tracking using smart phones. They can be downloaded free; however, user has to pay \$4.99 per month.

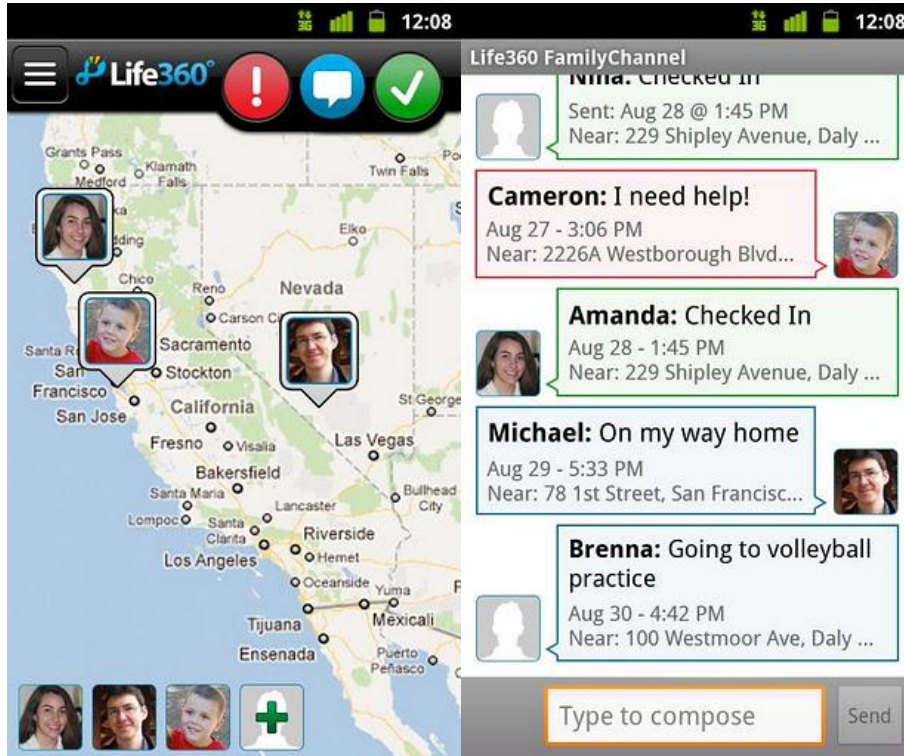


Figure 7 – Life360Family Locator [9]

Competition research indicates that family location systems have a large market share (Download numbers are above one million). In the future, we can also consider designing applications for family location tracking systems. Once Cher Ami

<p><b>Advantages of Cher Ami over GPS Tracking and Life360 Family Locator</b></p>	<p>SCC does not take monthly payments for the usage of the application. The payment is done for once.</p>
<p><b>Disadvantages of Cher Ami over GPS Tracking and Life360 Family Locator</b></p>	<p>These are specialized products for families. They have features such as seeing safety points or viewing sex offenders in the neighborhood and communicating with Police or hospitals in cases of emergencies.</p>
<p><b>Where Cher Ami differentiates from GPS Tracking and Life360 Family Locator?</b></p>	<p>Cher Ami has security feature. All data that is shared within the network is encrypted.</p>

is implemented correctly, it technically does not require an extra more effort or cost to design such as system using Cher Ami's architecture.

### 7.1.3 WhatsApp Messenger

WhatsApp Messenger is a very popular smartphone messenger program which is compatible with Windows Phone, Nokia Phones, Android, BlackBerry and iPhone. It

#### **Advantages of Cher Ami over WhatsApp Messenger**

Cher Ami has the feature of location tracking system. All data shared within the network is encrypted with a sufficiently high level of security.

#### **Disadvantages of Cher Ami over WhatsApp Messenger**

Users can send multimedia files such as videos, images or voice data. It has a user friendly interface which is the main factor behind its success among other well know messenger applications such as MSN Messenger and Gmail Messenger.

#### **Where Cher Ami differentiates from WhatsApp Messenger ?**

WhatsApp Messenger has focused on sending and receiving messages within a network. It does not contain any security issues. Similar to the comparison of Cher Ami with other messaging or location tracking applications introduced above, Cher Ami distinguishes from other messaging or location tracking programs with its security features.

enables users to message using 3G or WiFi connection. It has downloaded only from Android Market more than 10000000 times. Its usage is free for the first year and \$1.99/year after [10].

### 7.1.4 Other Related Applications:

Some location tracking or messaging applications are provided below. They do not require any analysis since their comparison with Cher Ami is not quite different from the explanations given above. However, they are included in this report since we regard it as a part of market and competition research.

- Buddyway: Location tracking system using GPS Chips embedded in the smart phones. It has been designed for long distance trips [11].



- SmartPhoneTracker: “SmartPhoneTracker allows you to locate your phone via GPS coordinates, useful if your phone gets lost or stolen, and for locating missing family members.” [12]
- Google Latitude: “Google Latitude enables users to share their location with other Google Latitude users, but ensures that no one can see your location if you don’t share it with them. Perhaps you are not willing to share your exact location. You access and use the service by visiting google.com/latitude (using phone, tablet or computer) to send an invitation to a friend or family member.” [13]

## 7.2 Smartphone Applications with Security Features

Smartphone applications with security features are generally focused on the encryption of a stored data such as image or text in the hard drive of the smart phone. These applications are given below:

<b>Djigzo S/MIME Email Encryption [14]</b>	Free Android software. It can be used with your existing Android mail application to send and receive S/MIME digitally signed and encrypted email with an Android smartphone.
<b>File Locker [15]</b>	Free and popular Android software. “The application encodes the file and makes it unreadable.” Download statistics: 100.000 - 500.000
<b>Safe Notes is a secure notepad [16]</b>	Free and popular Android software. “Safe Notes is a notepad application that stores your notes in a secure manner using 128 bit encryption and provides quick & easy access using a simple pin number or a secret question/answer.” Download statistics: 100.000 - 500.000
<b>OI Safe [17]</b>	Free and popular Android software. “OI Safe protects your passwords and other private data. Data is stored using AES Encryption. The software supports importing/exporting data.” Download statistics: 100.000 - 500.000
<b>Encrypt SMS - Send Secret Text Messages [18]</b>	iPhone application (\$1.99) “Encrypt SMS is a tool that allows you to encrypt messages that you send out with a password, and only those that have the same password can successfully decrypt and read the messages. It uses AES-256 encryption. Messages can have at most 70 characters”

<b>Hide Pictures with Keep Safe [19]</b>	Free and popular Android software. “Privacy protection made easy: pictures vanish from your photo gallery, and remain locked behind an easy-to-use PIN pad. With Keep Safe, only you can see you private pictures.” Download statistics: 1.000.000 - 5.000.000
<b>NoteCipher [20]</b>	Free Android software. “Secure notepad using SQLCipher for Android with 256-bit AES Encryption. This is a simple open-source notepad app which demonstrates the capability of the SQLCipher for Android encrypted database library.”
<b>Moxier Wallet Password Manager [21]</b>	Moxier Wallet with AES-256 encryption manages Passwords, Syncs Data, and other private files such as web logins or health & financial records!

In terms of security, all of the applications use symmetric key algorithms which mean data is encrypted by a security key entered by the user. Cher Ami uses RSA public key algorithm. Technical discussion on the choice of RSA and public key algorithm are done in the Block Diagram & Flow Charts Report. However, in such applications public key algorithms are more secure. In this perspective, we can also say that there is not an application in Android Market which provides more security than Cher Ami.

The competition research in Android Market and iTunes indicates that there is not another application which is fully capable of implementing Cher Ami’s features. Most of the applications (Examples: File Locker, Ol Safe, Moxier Wallet Password Manager, NoteCipher, Hide Pictures with Keep Safe) on this list are designed for the storage of the data in the smart phone. None of them has location tracking or messenger capabilities. “Encrypt SMS” can be regarded as the most significant competitor which support sending notes as SMSs. However, it only supports messages which have 70 characters length and again it does not have messenger and location tracking capabilities. Considering together with the results of Location Tracking & Messaging Applications without Security Features part, Cher Ami will be unique software which provides location tracking and messaging services together with security.

## 7.3 Secure Communication Products other than Smart Phone Applications

### 7.3.1 Encryption Portable Telephone Recorder



Figure 8 - Encryption Portable Telephone Recorder [22]

This is a recording product which has designed for fixed-line telephone conversations. Its contents can be played with special players in PCs. It can also encrypt its records. Its price is \$ 148.99 [22]. This product differentiates from Cher Ami in terms of its usage and capabilities. It does not support mobile phones and it can only perform encryption on the records. It is also more expensive than Cher Ami.

### 7.3.2 Pair of Sigillu Secure Encrypted Phones: Nokia E61 version



Figure 8 - Encryption Portable Telephone Recorder [23]

This product is capable of providing military-grade strong level encryption level. It is implemented on a Nokia E61 with encryption software. It can be used as an ordinary mobile phone on regular GSM cellular networks. It has a very high price: \$3,600.00 [23]. Its greatest advantage over Cher Ami is that it can provide encrypted mobile phone calls. Our greatest advantage in comparison with this product is our price. Furthermore, it requires the usage of an extra mobile phone where Cher Ami enables its users to use their smart phone with an external hardware which can communicate with their smart phone using wireless technology standards.

### **7.3.3 KryptoMobile**

It is an application installed on mobile phones. It allows dialing and receiving encrypted phone calls using Internet connection through Wifi or 3g /Umts [24]. It is weaker in terms of security comparing to Cher Ami; however, it is still sufficient in communication standards. Its advantage is (similar to Sigillu Secure Encrypted Phones: Nokia E61 version) that it allows encrypted mobile phone calls. Cher Ami only provides secure messaging and location tracking features. Its disadvantage is again its price: the encrypted call services cost 0.35 EUR a minute. In long term, it is more expensive than Cher Ami.

As a conclusion, we can state that our greatest advantage is that we work on Android Smart phone which are the rising trend in the communication sector. Our prices are very acceptable comparing to other products. We can survive in competition in the secure communication sector; if, we can develop applications and devices to support voice calls and increase our security by developing more secure algorithms and obtaining official verifications.

## 8. After Sale

In this part, we explained the updates of the Cher Ami. After sale, the users are able to reach updates and patches that we will announce. Firstly, database program embedded is described. Then, updates are clarified.

### SQL Languages



**MySQL** is an incredibly popular free, open-source database server, largely due to the fact that it can typically run circles around the others, and runs efficiently with fewer resources. It is also work with java compatibly. Our developers are familiar with the codes of MySQL.[25]

### Updates

Installation and updates will be done through web site which will be developed for sale purposes (securecommunicationcenter.com) or through android market. Android market is a web site which android developers easily upload their program for commercial usage or free usage and android users can get applications from this web site easily. [26]

Users will not need to check if an update is necessary or not. Each time users run the application, it's checked that whether there is an update available or not. If an update exists application users will be warned and update option will be available until new patches are installed. Updates will be free for users which pay application before.



Users will not be able to install old version of the application. Application on both the web site and on the android market will be updated each time a new update comes.

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2. Your Domain Settings		
<b>Your Domain Names (1)</b> securitycommunica...com <a href="#">View and Edit All Domains</a>	<b>Registration Length</b> 1 yr	<b>Certified Domain</b> ⓘ <input checked="" type="radio"/> Certified <b>Just \$2.99/yr</b> <input type="radio"/> Uncertified

Registration length can be chosen between 1 to 10 years. Users are able to use the application all the times which server is running. It means it runs forever until we decide to give up this business. Since we are a security company we decide to apply security concerns in every part of our working environment so that we applied for certified domain which is like an identification card that indicates we are we. It means web site is securitycommunicationcenter.com and users are in a safe web site. It costs us \$3 for a year.

### 3. Your Privacy and Domain Protection

Keep your information <b>private</b> Select a registration type	 <b>Privacy with Business Registration</b> <del>\$16.94/yr</del> <b>\$10.94/yr</b> <a href="#">In Cart</a>	<b>BEST VALUE!</b>  <b>Protected Registration</b> \$24.99/yr <a href="#">Select</a>
<b>Private Registration†</b> Helps protect yourself from spam, scams, prying eyes and more by shielding your personal information from public view.	✓	✓
<b>Business Registration</b> Provides vital details of your business to millions of daily WHOIS searchers.	✓	✓
<b>Expiration Protection</b> <a href="#">www.DomainHostingAll.com EXCLUSIVE!</a> Protects your domain against loss due to credit card expiration or failure, outdated contact information and more.		✓
<b>Deadbolt Transfer Protection</b> Protects your domain against any accidental or malicious transfer.		✓

There was a simple registration option which does not provide web site from spams. Its cost was \$9 but to supply more secure web site we chose second option with extra cost of \$2 dollars.

### 4. Activate Your Domain

**Add Email**  
[you@securitycommunicationcenter.com](mailto:you@securitycommunicationcenter.com)  
Status: ✓ Pending Purchase

**Get your domain for only \$1.99\* with any purchase below!**

**How many email addresses do you want?**

**5 email addresses & 2GB storage** [Details](#)  
\$1.67 / mo

**10 email addresses & unlimited storage\*\*** [Details](#)  
\$2.50 / mo

[In Cart](#) [Remove](#)

We will have five e-mail addresses to be used for mailing purposes. Like Hotmail, yahoo, Gmail addresses chosen ten people probably CEO and the managers will have these addresses.

## 8. REFERENCES

- [1] Mercer D., *“Marketing Material”*, Blackwell Editions Chapter:9 Can be reached on <http://futureobservatory.dyndns.org/9439.htm> Last Accessed on 10.12.2011
- [2] *“Free Brochure Templates”* <http://www.brochurestemplates.com/> Last Accessed on 10.12.2011
- [3] *Matbaakent, Broşür Fiyat Listesi* Last Accessed on 11.12.2011  
<http://www.matbaakent.com/tr/index.php?t=0&s=67&title=brosur>
- [4] *CeBIT* [www.cebit-turkey.com](http://www.cebit-turkey.com) Last Accessed on 11.12.2011
- [5] *IDEF 2011* [http://www.tuyap.com.tr/webpages/idef11/index\\_eng.php](http://www.tuyap.com.tr/webpages/idef11/index_eng.php) Last Accessed on 11.12.2011
- [6] *ICT 2011* <http://www.ict2011.org/> Last Accessed on 11.12.2011
- [7] *“GPSMS Lite”* <http://itunes.apple.com/gb/app/gpsms-lite/id385077585?mt=8>  
Last Accessed on 13.12.2011
- [8] *“GPS Tracking Family Safety Production”* Last Accessed on 13.12.2011  
[https://market.android.com/details?id=com.fsp.android.c&feature=search\\_result#?t=W251bGwsMSwxLDEsImNvbS5mc3AuYW5kcm9pZC5jll0](https://market.android.com/details?id=com.fsp.android.c&feature=search_result#?t=W251bGwsMSwxLDEsImNvbS5mc3AuYW5kcm9pZC5jll0).
- [9] *“Family Locator Life360”* Last Accessed on 13.12.2011 <http://www.life360.com/>
- [10] *“WhatsApp Messenger”* <http://www.whatsapp.com/> Last Accessed on 13.12.2011
- [11] *“GPS Phone Tracking System”* <http://www.buddyway.com/tour/> Last Accessed on 13.12.2011
- [12] *“SmartPhoneTracker on android!”* <http://smartphonetracker.blogspot.com/>  
Last Accessed on 13.12.2011
- [13] *“Free GPS Apps – Android Cell Phone Tracking Solutions”*  
<http://bestandroidappsfor.com/others/free-android-cell-phone-gps-tracking-solutions> Last Accessed on 13.12.2011
- [14] *“Djigzo S/MIME Email Encryption”* Last Access on 13.12.2011  
[https://market.android.com/details?id=com.djigzo.android.application&feature=search\\_result](https://market.android.com/details?id=com.djigzo.android.application&feature=search_result)
- [15] *“File Locker”* Last Access on 13.12.2011  
[https://market.android.com/details?id=com.mwgo.filelocker&feature=search\\_result](https://market.android.com/details?id=com.mwgo.filelocker&feature=search_result)

- [16] "*Safe Notes is a secure notepad*" Last Access on 13.12.2011  
[https://market.android.com/details?id=com.isbell.ben.safenotes&feature=search\\_result](https://market.android.com/details?id=com.isbell.ben.safenotes&feature=search_result)
- [17] "*OI Safe*" Last Access on 13.12.2011  
[https://market.android.com/details?id=org.openintents.safe&feature=search\\_result](https://market.android.com/details?id=org.openintents.safe&feature=search_result)
- [18] "*Encrypt SMS - Send Secret Text Messages*" Last Access on 13.12.2011  
<http://itunes.apple.com/us/app/encrypt-sms-send-secret-text/id349861478?mt=8>
- [19] "*Hide Pictures with Keep Safe*" Last Access on 13.12.2011  
[https://market.android.com/details?id=com.kii.safe&feature=search\\_result](https://market.android.com/details?id=com.kii.safe&feature=search_result)
- [20] "*NoteCipher*" Last Access on 13.12.2011  
<http://www.appbrain.com/app/notecipher/info.guardianproject.notepadbot>
- [21] "*Moxier Wallet Password Manager*" Last Access on 13.12.2011  
<https://market.android.com/details?id=com.emtrace.wallet.walletapp.android>
- [22] "*Encryption Portable Telephone Recorder*" Last Access on 13.12.2011  
<http://www.amazon.com/Encryption-Portable-Telephone-Recorder/dp/B005JEAM7S>
- [23] "*Pair of Sigillu Secure Encrypted Phones: Nokia E61 version*" Last Access on 13.12.2011  
<http://www.amazon.com/Pair-Sigillu-Secure-Encrypted-Phones/dp/B000UO98V8>
- [24] "*KryptoMobile*" Last Access on 13.12.2011 <http://en.kryptotel.net/>
- [25] <http://alternatives.rzero.com/sql.html>
- [26] [http://www.webopedia.com/TERM/D/database\\_server.html](http://www.webopedia.com/TERM/D/database_server.html)



## Appendix A - Manufacturing Cost

CC2540 (Bluetooth Chip) order price: [2]

# of Order	Price
1 - 9	€7.22
10 - 99	€5.80
100+	€4.82

ALTERA EP1C3T100C8N [3]  
10.70\$

LF15AB Regulator: [4]

# of Order	Price
1000	0.937\$

LF33CDT-TRY Regulator: [5]

# of Order	Price
500+	0.9576\$

Sanyo Prismatic Rechargeable Battery with Fuse 3.7V 2000mAh: [6]

# of Order	Price
500+	\$13.95

Other circuit components (Resistors, capacitors, etc);

For each device, we estimate that the cost of the other circuit components (Resistors, capacitors, etc) won't exceed 1.5\$.

Manufacturing and Assembly of Printed Circuit Boards in China (PCBs): [7]

PCB manufacturing cost: 56USD\$/sq meter for single side PCB  
Since our device will have the following dimensions: 30mmx50mm  
The cost of PCB for each device is 0.084\$.

## Appendix A - REFERENCES:

[1]

[http://www.goldphoenixpcb.com/html/Support\\_Resource/tutorials/arc\\_41.html](http://www.goldphoenixpcb.com/html/Support_Resource/tutorials/arc_41.html)

(Bu referans Cost Analysis of Printed Circuit Board diye bir pdf document'i buldum, onun adresi. Mailde ekledigim pdf, belki ordan cost analizi icin biseyler alabilirsiniz)

[2]

<http://tr.farnell.com/jsp/displayProduct.jsp?sku=1862837&action=view&CMP=GRHS-1001023>

[3]

<http://parts.digikey.com/1/parts/586601-ic-cyclone-fpga-2910-le-100-tqfp-ep1c3t100c8n.html>

[4]

<http://www.st.com/internet/analog/product/63593.jsp>

[5]

<http://parts.digikey.com/1/parts/1806372-ic-reg-vldo-inhibit-3-3v-dpak-1f33cdt-try.html>

[6]

<http://www.mdbattery.com/sanyo-prismatic-rechargeable-battery-with-fuse-3-7v-2000mah.html>

[7]

<http://www.pcb sino.org/>

## APPENDIX – B

### Legacy of Cher Ami

Turkish Law requires share of the cryptology algorithms with Turkish Information Technologies Authority from the companies which provide security communication products. The related part of the regulation is given below (In Turkish):

#### KAMU KURUM VE KURULUŞLARI İLE GERÇEK VE TÜZEL KİŞİLERİN ELEKTRONİK HABERLEŞME HİZMETİ İÇİNDE KODLU VEYA KRİPTOLU HABERLEŞME YAPMA USUL VE ESASLARI HAKKINDA YÖNETMELİK

### İKİNCİ BÖLÜM

#### Kodlu veya Kriptolu Elektronik Haberleşme Hizmetleri İçin Başvuru, Değerlendirme, İzin İşlemleri, Emniyet ve Muhafaza Tedbirleri

Başvuru

**MADDE 5** – (1) 5809 sayılı Kanunda belirtilen istisnai kurumlar haricindeki tüm kamu kurum ve kuruluşları ile gerçek ve tüzel kişiler bu Yönetmelik hükümlerine aykırı olmamak kaydıyla kodlu ve/veya kriptolu haberleşme yapabilir.

(2) Kodlu veya kriptolu haberleşme cihaz/sistem ithal veya imal edilmesi üretici tarafından yapılır. Üretici, imal veya ithal edeceği cihaz/sistemlere izin alabilmesi için;

- a) İzin başvuru yazısı,
  - b) Kurulması planlanan haberleşme sisteminin türü (kara, deniz, hava, uydu) ve sistem özellikleri dikkate alınarak talep sahibi tarafından doldurulup imzalanmış iki nüsha ilgili Kurum Başvuru Formu,
  - c) Kullanılan kriptoloji/teknik/cihazı ile ilgili belgeler ve kullanılacak elektronik haberleşme sisteminin teknik özellikleri,
  - ç) Kriptoloji algoritması ve anahtarı, anahtar üretme, dağıtma ve yükleme modülü/cihazı, bu amaçla kullanılan tüm yazılım/donanım, gerektiğinde şifrenin çözülmesine imkân tanıyan yazılım ve/veya donanım,
  - d) İki adet cihaz numunesi, var ise opsiyonel yazılımlar/donanımlar, aksesuarlar, ihtiyaç duyulması halinde bu cihazların testinde kullanılacak özel aparatlar,
  - e) Gerçek ve tüzel kişilerden; Ticaret Odası belgesi, Sanayi Odası belgesi, Ticaret Sicil Gazetesi örneği, dernek tüzüğü veya bunlara benzer bir faaliyet belgesi,
  - f) Gerçek ve tüzel kişileri temsile yetkili kişilerin imza sirküleri,
  - g) Tüzel kişileri temsile yetkili kişiler ile gerçek kişilerin adli sicil belgesi,
  - ğ) 24/3/2007 tarihli ve 26472 sayılı Resmî Gazete’de yayımlanan Telsiz ve Telekomünikasyon Terminal Ekipmanları Yönetmeliği (1999/5/AT) kapsamında yer alan cihazlar için aynı Yönetmeliğin Ek-2’inde belirtilen teknik dosya içeriği,
- ile birlikte Kuruma başvurur.

Değerlendirme

**MADDE 6** – (1) Kodlu veya kriptolu elektronik haberleşme hizmeti cihaz/sistem üreticisinin başvuruları; telsiz sistemleri bakımından 17/7/2009 tarihli ve 27291 sayılı Resmî Gazete’de yayımlanan Telsiz İşlemlerine İlişkin Usul ve Esaslar Hakkında Yönetmeliğe, cihaz/sistemlerin piyasaya arzı, dağıtımı, piyasada bulunması ve hizmete sunulma aşamalarında ise Telsiz ve Telekomünikasyon Terminal Ekipmanları Yönetmeliğine (1999/5/AT) göre değerlendirilir.

(2) Üretici veya üretici firmayı temsilen imza yetkisini haiz kişilerin adli sicil kayıtlarında Devletin ülkesi ve milletiyle bölünmez bütünlüğüne, Cumhuriyetin temel ilkelerine ve devletin güvenliğine karşı suçlar, Anayasal düzene ve bu düzenin işleyişine karşı suçlar, milli savunmaya karşı suçlar, Devlet sırlarına karşı suçlar ve casusluk, zimmet, irtikâp, rüşvet, hırsızlık,

dolandırıcılık, sahtecilik, güveni kötüye kullanma, hileli iflas, ihaleye fesat karıştırma, edimin ifasına fesat karıştırma, suçtan kaynaklanan malvarlığı değerlerini aklama veya kaçakçılık veya 12/4/1991 tarihli ve 3713 sayılı Terörle Mücadele Kanunu kapsamındaki suçlardan mahkûm olma durumu var ise yapılan başvuru reddedilir.

(3) Kamu kurum veya kuruluşları ile gerçek ve tüzel kişilerin yurtdışından yolcu beraberinde veya kesin dönüşte getirilen veya bireysel olarak ithal edilen veya posta ile gelen kodlu veya kriptolu haberleşme cihaz/sistemlerine, bu cihaz/sistemlere ait kod veya kriptolu anahtarlarının Kuruma teslim edilmesi halinde, kullanma ve kurma izni verilebilir. Kurumdan izin alınmadan yapıldığı tespit edilen kodlu veya kriptolu haberleşmeler iletişime kapatılır ve ilgililer hakkında suç duyurusunda bulunulur.

(4) Üretici tarafından yapılacak başvurularda ilgili mevzuata uygun görülmeyen kodlu veya kriptolu cihaz/sistem başvuruları reddedilir.

(5) Kurum tarafından ihtiyaç duyulması halinde kodlu veya kriptolu elektronik haberleşme sistemlerine ilişkin olarak bu konuda ihtisaslaşmış kuruluşlarla işbirliği yapılabilir.

(6) Yabancı devletlerin Türkiye'deki diplomatik temsilciliklerine münhasıran kendi hükümet merkezleri ile haberleşme yapmak veya kendi iç güvenlik amaçlarıyla kullanmak üzere karşılıklılık esaslarına bağlı olarak kodlu veya kriptolu elektronik haberleşme sistemi kurma ve işletme izni ile ilgili her türlü işlemler Dışişleri Bakanlığı tarafından değerlendirilir.

(7) Kamu kurum ve kuruluşları tarafından kullanılan kodlu veya kriptolu haberleşme sistemlerinde tasarımı ve üretimi Türkiye'de yapılan milli kriptolu cihazlarının kullanılması esastır.

İzin

**MADDE 7 –** (1) Kodlu veya kriptolu elektronik haberleşme hizmeti başvuruları Kurum tarafından değerlendirilir. Başvurunun kabul edilmesi durumunda kod veya kriptolu Kuruma teslim edilir ve üreticiye izin verilebilir.