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Secure Case

In recent times, we have seen the rise of fingerprint technology in most cellphones. Currently in the market we have around 43 cellphones capable of unlocking the phone using fingerprints. Yet, every person does not carry a cellphone bearing this feature. In most poorer countries, this technology has not reached the common man. Further, such technology could be a breakthrough against cellphone thefts in those communities. Therefore, I propose that we replace the regular phone cases we buy with ones having fingerprint verification and a secure casing to provide a very high level of security to the user. Mobile phones used to be secure before the last five years. We need to bring the build quality and security to match the modern world.

The cellphones we own now do not suffice in security. Not everybody thinks twice to steal somebody else's phone. The phone's case can be a smart case, having lightweight micro components, and a fingerprint scanner on the outside, all packaged inside a metallic or polymer case of high durability. Such a setup provides the scope to provide extreme protection for cellphone devices or tablets.

Problem

A report from the GAO in 2012, shows the previously inherent security flaws of mobile phones. They say "Mobile devices often do not have passwords enabled", which is still a common problem today. Many persons seldom protect their phones. In the event of losing your phone, you would be under the constant threat of losing your data or it falling into the wrong hands. If we could restrict that, by introducing a secure case to the user, we can protect their identity and data. Mobile phones are a crucial part of everyone's day, and we spend most of our time on them, causing us to store a lot of personal information on our phones. The security aspect of the phones in the market has declined a notch, phones aren't as secure as they used to be.

The mobiles released before 2015 do not include fingerprint readers. The current market has many new phones, but in a country like India, having the highest number of cellphone users, the number being 1,151,780,000, unfortunately, not many people own fingerprint enabled phones. In that case, people who are happy with their existing phones need not upgrade to the newer ones in the market, they can just buy a smart case which will protect their phones. In other countries, such as China or USA, each having 1,060,000,000 and 327,577,529 number of cellphones in use, respectively, we know that not all have upgraded their mobiles to the newer versions. Hence, I think there is a strong market here and worldwide.

Opportunity

Most older mobile phone users still don't have the access to fingerprint scanner in a way we want to provide to them. Also, there are many android phones like Asus Zenfone 2, Samsung Galaxy A7 and Apple's older versions not featuring this attribute. All the models before 2011 do not have the feature of a finger print scanner, further, even today 60% of phones with an inbuilt finger print scanner are above the budget of 50% of middle class. Research in mobile security shows that a fingerprint recognition system increases security of mobile data by 53%.

Talking to the mobile users of the existing models with the finger print facility, 9 out of 10 people gave positive reviews as to how this feature benefitted them in saving time and with the ease of access to their own devices but with security of phone data. People using models before 2015 and with phones which do not have this facility have all expressed a positive desire to have this facility and believe that it will increase the security of their phone data.

A fingerprint sensor in a phone has been around since 2011. Motorola was the first phone with a fingerprint sensor for security purposes. The sales of this phone have beaten the previous model by 76%. The approval of this model created a pathway for fingerprint security to become a compulsory feature in the upcoming phones. Apple followed this trend with their iPhone 5S in 2013, raising its sales by a total of 46%. But there have not been any proposals to include this feature as an additional option for phones. Allowing it to be a part of a smart case will allow existing users to decide if they require this feature without upgrading to a new phone.

The main advantage of this device is the portability. Changing a phone cover is cheaper than changing the phone due to damages. Also, the finger print facility on the case allows easy access to the data without compromising the security. Security is one of the main requirement for establishing the sale of a phone. Giving the option of adding security along

with portability, at a significantly lower price, also eliminating the need for device replacement in case of hardware malfunction will be a remarkable add on option.

Our research shows that the rivalry is not very high in this sector. The only competition is the domination of the market by cellphone companies integrating the fingerprint sensors in all their upcoming models. However, not everyone would like to upgrade their phones every six months.

Solution

Basically, the solution is a smartphone case with fingerprint security and impenetrable casing. The smart case should be cheap and easy to produce. It should be able to establish a secure connection to the phone always. We intend to use USB or NFC module to connect securely to the phone. The case should be plug and play and easy to use. The case would be constructed out of high quality silicone or carbon fiber and internal electronic components. Keeping this in mind, we can further check that mobile phones are not very sturdy or protective initially. They seem to be designed to break easily, and conveniently be lost. Mobile manufacturers do not seem to have security in mind while designing their phones. Basic password and PIN based security are becoming obsolete, and we need to look towards more secure ways of identification.

The targeted customers are the ones owning phones purchased before 2013-2015. Current solution in the market is effective but is not available to all customers. Most older mobile phone users still don't have the access to fingerprint scanner in a way we want to provide to them. Not everyone can buy an expensive Apple IPhone while Apple themselves released the fingerprint technology with their 5S onwards. Instead of upgrading to a new phone entirely, one can utilize our product which is inexpensive. We keep the android market in mind, but our product can capture any other phone models too. With the advent of fingerprint technology in the market, it's becoming obvious that mobile phone security is top priority nowadays. Our case should be able to protect the phone at all costs. Carbon fiber or silicone cases provide basic protection. We need to improve the security of this feature. Our product provides value to the customer in ways not thought of before. The fingerprint technology sector is going to see a lot of growth in the upcoming years. We intend to focus on that growth and equip even the common man with this tool. The possibilities are endless with applications in banking, email, data vault etc.

Our project is still in the conceptualization phase. We are designing the product. We do have a clear picture on our minds, though we need to generate the required circuits and prototype characteristics to build the smart case.

If the project can be conceptualized, we might continue working on it after graduation too. Or we might pass it on to some other company in the future for factory based production. The idea might sustain longer than foreseeable. Technology is not easy to come across in under-developed communities. So, this case might sustain over an extended period in such communities.

Resources

Our team can only commit a few weekends on this project. But on the contrary, the project doesn't need so much work. Displaying a working prototype will surely attract some manufacturers incidentally. We required at least $300 for buying the parts for testing. We need to construct a prototype, and we believe that Difference Maker funds will be especially helpful and motivational towards completing our project.

Product design - $200

Marketing - $200

Product development plan $100

Development and production $500

We intend to make at least one prototype.