
WPI

# Startup Promotion Strategy

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*Laurentiu Pavel*

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*Professor Sergey N. Makarov*

*Project Advisor and Mentor*

## Abstract

This project aims to expand the promotion of a small technology startup by redesigning their website. Before this project, the company was in possession of a website that was build with old technology to suit the company's initial needs. Although the needs changed over time, the website was not flexible enough to keep up with the overall promotion made by the owners in academia.

At the end of this project, the company is in possession of a newly designed website built around the current purpose of the company that matches the current User Experience trends. The website is easily maintainable and flexible such that it suits a startup culture that embraces change.

## Acknowledgements

First of all, I would like to thank Professor Sergey N. Makarov for giving me the chance to work on such an interesting project. Designing a website is a task that requires constant feedback and input from the owners and I had a wonderful support from professor Makarov during all the stages of this project. Secondly, I would like to thank Gregory M. Noetscher and Viktor S. Makarov for their quick responsiveness that helped building a website in such a short time.

# List of contents

# List of figures

# List of tables

# 1. Introduction

The promotion of a startup includes many different components. The data presented in (Internet Live Stats, 2015) shows that there are more than 3 billion users of the Internet in the world. This market involves 40.4% of the population, reason why online promotion needs to be very well taken care of.

Because of such a big number of users, many resources have been allocated towards research into better designing websites that suits user needs. Technology changes, user behavior and needs also change, reason why the methodologies also have to constantly adapt the new needs. One interesting analysis that presents how the web constantly changes is shown in (Cutter, 2015). For example, in (Bosomworth, 2015) is presented how in 2014, the number of mobile accesses has taken over the number of desktop accesses. It would have been impossible to predict such a big paradigm shift before smartphones or tablets were even introduced on the market. Therefore, starting with 2014, a very well organized website that is not portable on mobile devices will address only half of the users of the Internet.

In this project's case, the startup investigated is NEVA Electromagnetics (in this paper we will abbreviate it with NEVA), a company that offers electromagnetic solutions to problems involving the human body. The company has various software packages that are available for free, but it also sells complex and powerful products such as the VHP Human Model.

The website that NEVA currently uses was designed and built in 2008 on technology that is difficult to change and fairly far away from the currently used standards. Moreover, the size of the company does not justify paying a person just to be in charge of the website. Because of this, it is very important that the owners of the company have full control of the website and are able to make quick changes without the need of a specialized web designer whenever they need to.

The goal of this work is to improve the online promotion of the company by building a website that complies with the contemporary technology. This implies building a website that is portable on all devices used at the moment, that is easily maintainable and changeable by the owners of NEVA without professional help. Moreover, the website needs to be designed such that it points the users to the more important products and technologies that NEVA is creating at the moment.

# 2. Background

Before starting the design and the development of the website, it is important to take a step back and understand what goes into the process and what are the important components that needs to be kept in mind. Some of the most important components include the need for users to easily identify whether the information they are looking for is present on the website and at the same time to be pointed to the information that the website is trying to promote. Simultaneously, it is important that the user enjoys the time spent on the website such that accessing it again feels comfortable.

Another important component is creating a design that easily accommodates the changes that may occur in the company and its products. For a startup, it is likely that the products constantly change and all the adjustments should be easy to make.

## 2.1 Defining User Experience (UX)

Although technologies change, there is one invariant that all designers should have in mind: whenever a user enters the website, he will have the experience that was designed for him. Therefore, one approach that handles the constant change is presented in (Gube, 2010) and states that the focus should be on the user, making him experience what suits the products in the best way.

Also in (Gube, 2010) user experience (abbreviated as UX) is defined as the feel a person has when interfacing with the system, where the system is defined as "a website, a web application or a desktop software and, in modern contexts, is generally denoted by some form of human-computer interaction (HCI)". This definition states that the user feels something when interfacing with the product and the creators have full control over making the user have a successful experience or an unsuccessful one.

Another definition of UX is a reaction influenced by user's personality, the design of the system and the environment of the interaction as it is presented in (Hassenzahl, 2006). This definition states how important it is to understand the market and come up with designs that satisfy it. Therefore, while designing the website, it is very important to know which type of users are likely to search for the product, in what environment will they access the website and also how complex does it need to be in order to create the best experience.

## 2.2 What people do on the web?

In order to create a proper experience for the users, it is important to understand how they interact with the web. Since the World Wide Web is oversaturated with content, people tend to be very selective into the time allocated on a page. For example, in (Monjoo, 2013) it is presented an analysis on UX done by slate.com, which revealed that some users do not scroll at all and that most

visitors read only about 50% of the information posted. However the same study shows that although most people do not read the content, many of them still scroll through the entire content.

Another study from 2008 presented in (Nielsen, 2008) shows that on average, the amount of time people spend on the web would allow them to read at most 28% of the words. However, taking into account that, as shown in (Internet Live Stats, 2015), since 2008 until now the number of websites on the internet has more than quadrupled and it is still increasing, it is very unlikely that the time people spend on websites will ever increase.

These studies show how important it is to select only information that people must see and not to overload the website with content that users will anyway not read. Not enough information does not provide the user with his expectations from the website, but at the same time, too much content may create an inconvenience and if he needs to spend more time, he probably won't.

### 2.3 Why is flexibility so important for a startup?

A study presented in (Loerzel, 2013) shows that many successful startups go through deep changes before they become sustainable businesses. Since there is a possibility that the company will make changes in the future, the website needs to be flexible so that it can be quickly changed to fit the new needs.

Startups are generally formed with few people. The startup analyzed in this paper has only 3 employees. For such a small number of people that have to deal with the development of the product as well as the administration of the business, it is timely expensive to deal with the development of the website as well. Also, bringing a developer in the team when the product does not mainly depend on the Internet would not necessarily be smart decision. Developers are expensive and there is not much work for them to perform in NEVA.

At the same time, externalizing the development of the website to some 3rd party developer does not offer the flexibility that a startup may need. Making more changes and going through an expensive service every time is not something a small company can afford. Moreover, it is very hard to trust other people not to steal the intelligence and to keep the secrets.

Ideally the owners would be in the possession of a website that has already been created for them but that they can very easily modify for any progress that has been made in the company.

# 3. Methodology

Before working on this project, there were no clear specifications on how the new website should look or what methodologies to use. Therefore, the approach taken for this project consists in creating requirements, making a design and then building the actual website.

## 3.1 Before designing

As stated before, there were no clear requirements before starting this project. Before designing, it was decided to first analyze the current website, understanding what are its current issues and how can it be improved. After analyzing the website, the next step is to decide upon tools that obey the owners' needs and that are not likely to become obsolete in the near future. After making the analysis is done and the tools are chosen, they will be discussed with the owners to check whether they believe that everything complies with their view.

## 3.2 The design and implementation

After all the tools are chosen, the design phase starts. The design and the implementation will be done concurrently to prove the flexibility of the website. The design phase will consist in several iterations with the owners in order to bring confidence that the final product is something that the owners are comfortable with.

### 3.3 Post design

After the design and the implementation of the new website is over, it was decided to write documentation that will help the owners make changes to the website whenever they need to. The last section of this project will consist in documenting what the developer considered important that the owners know before they make any changes. At the end of the project, there will be an Appendix that contains information addressed to the owners that contains some particular details that could be helpful when they stumble.

# 4. Evaluation of current website

As previously mentioned, the company already has a website running. It was created by one of the owners using a website builder called Rapid Weaver. Although it offers good flexibility, its usability is limited to MacOS, which makes it impossible for two of the owners to change the content because they use different operating systems. Moreover, the website was initially created in 2008 and its design is not suitable for current technology standards, i.e. it is not portable on mobile devices. As presented in the background section, more than half of the pages accesses on the web come from mobile devices, which makes the current website impossible to satisfy the need of more than half of the online users.

Another issue with the current design is that although the business strategy changed, the website was not redesigned with the new strategy in mind, but it was 'patched' with new information instead.

## 4.1 The business perspective

When the website was initially created, its scope was to provide an online solution to sell all the products the company offered. The company's focus is electromagnetic simulations and human body meshes. Figure 1 is an image that contains all the products the company worked on that are posted on their current website.

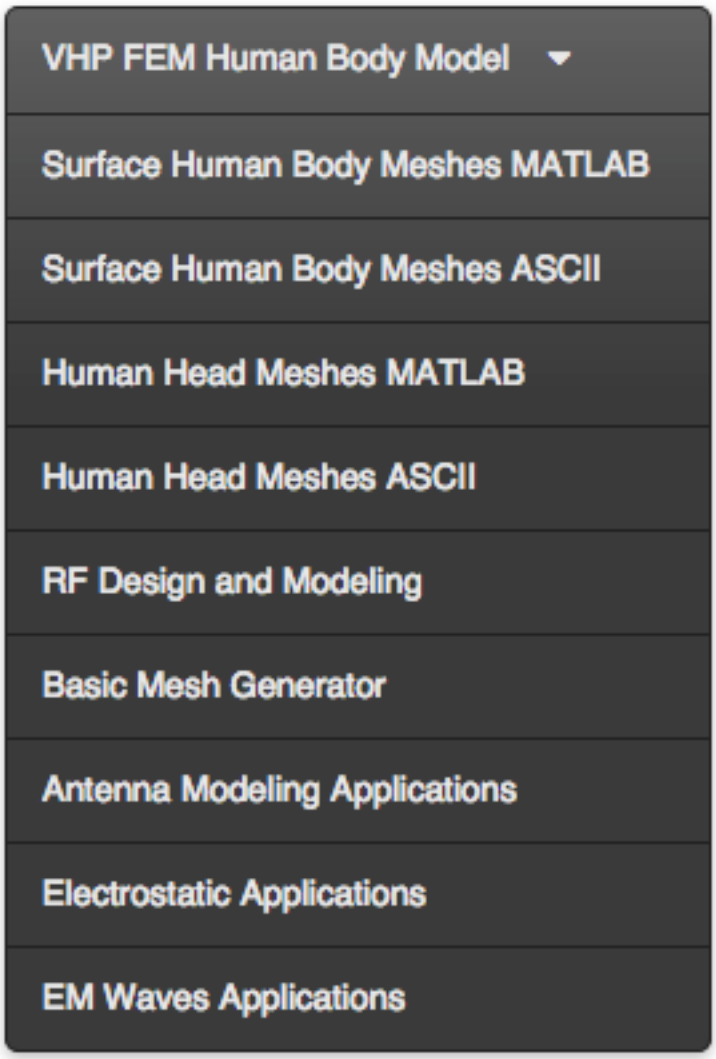



**Figure 1: List of products from 'Products' page**

Although there are many products that the company invested on, their main focus in the last period has shifted towards the Visible Human Project (VHP). This product is at the moment much more important to the research community and it is also the most expensive one the company has to offer. Therefore the current main

business purpose of the website is to present and sell the VHP model (more precisely, the latest version VHP-Female v. 2.0).

An analysis on how the website achieves this goal proves that it contains some major flaws. The home page, shown in Figure 2, is the page that people land on whenever they access the website from its main URL. As it can be seen, the main product is properly advertised on the front page. The first picture people see is that of the VHP-Female v. 2.0, which is exactly what it is needed from the business perspective.

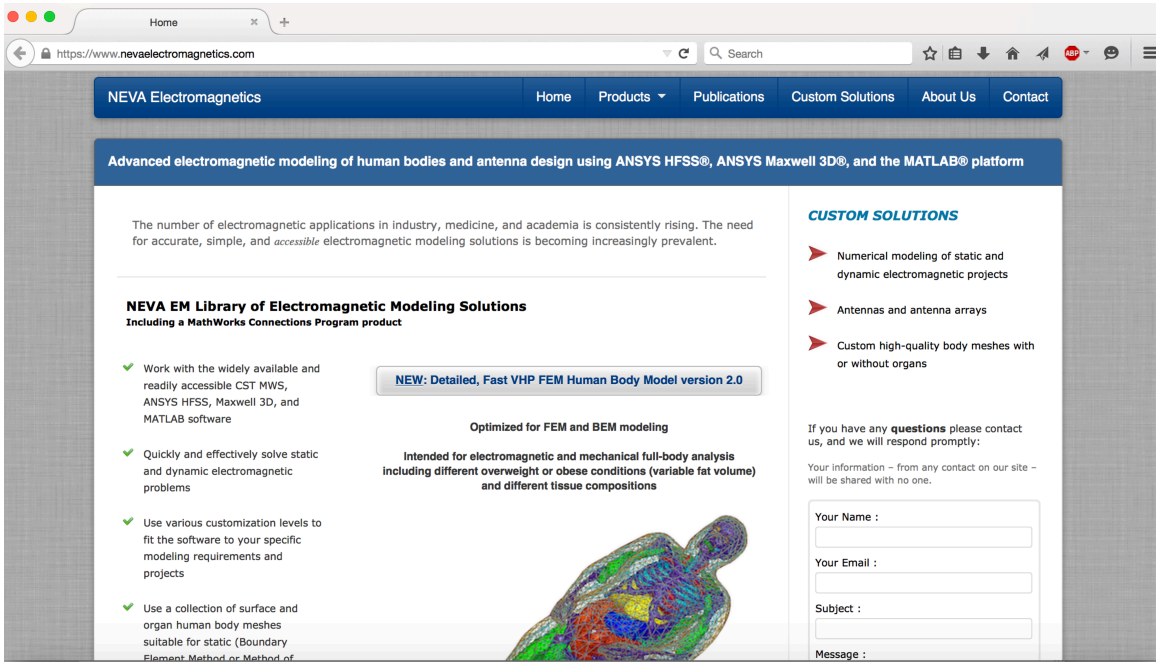



**Figure 2: Homepage of current website**

Another good business practice can be seen on Figure 3 where the expansion of the ‘Products’ menu lists the VHP model very close to the top. Probably an even better practice would have been swapping VHP 1 with VHP 2.0 because the later

one is the one the company wants more people to access and it should be brought as close to the top as possible.

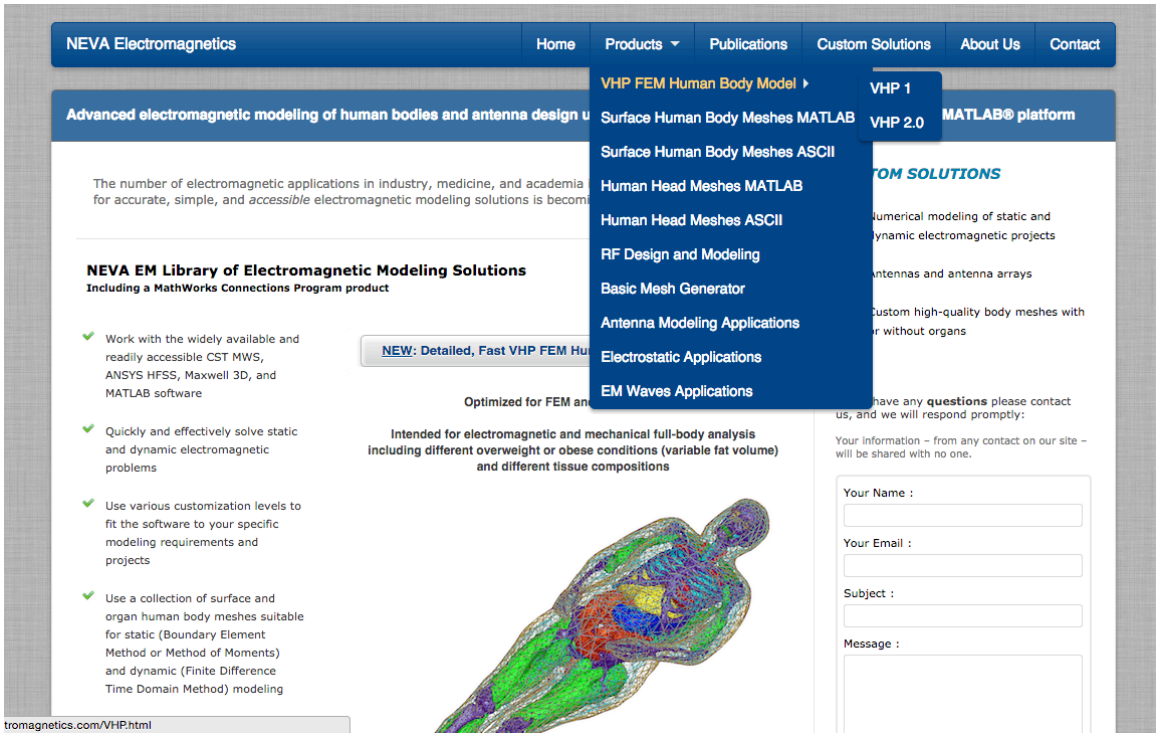



**Figure 3: Homepage with Products menu expanded**

The first major flow of this website occurs when the user presses on the 'Products' menu without choosing a specific product. He is taken to the page shown in Figure 4. Instead of showing the user with a blank page, the user would preferably be shown the main product.

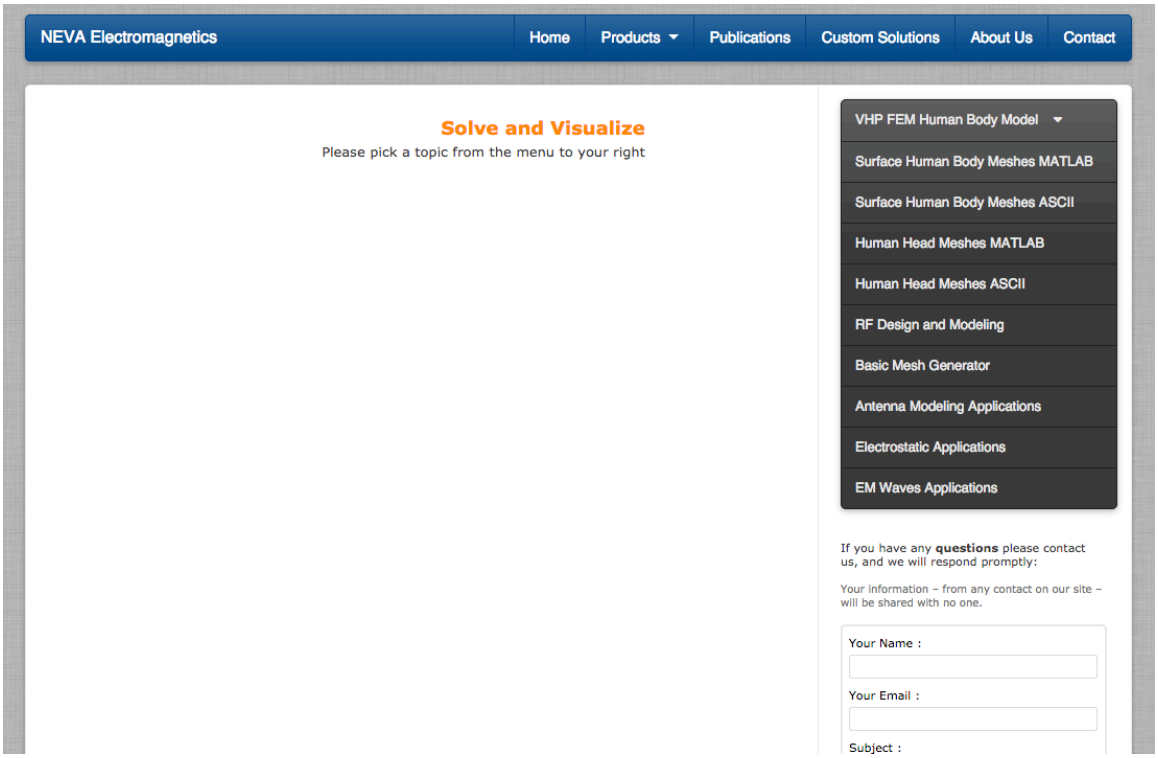
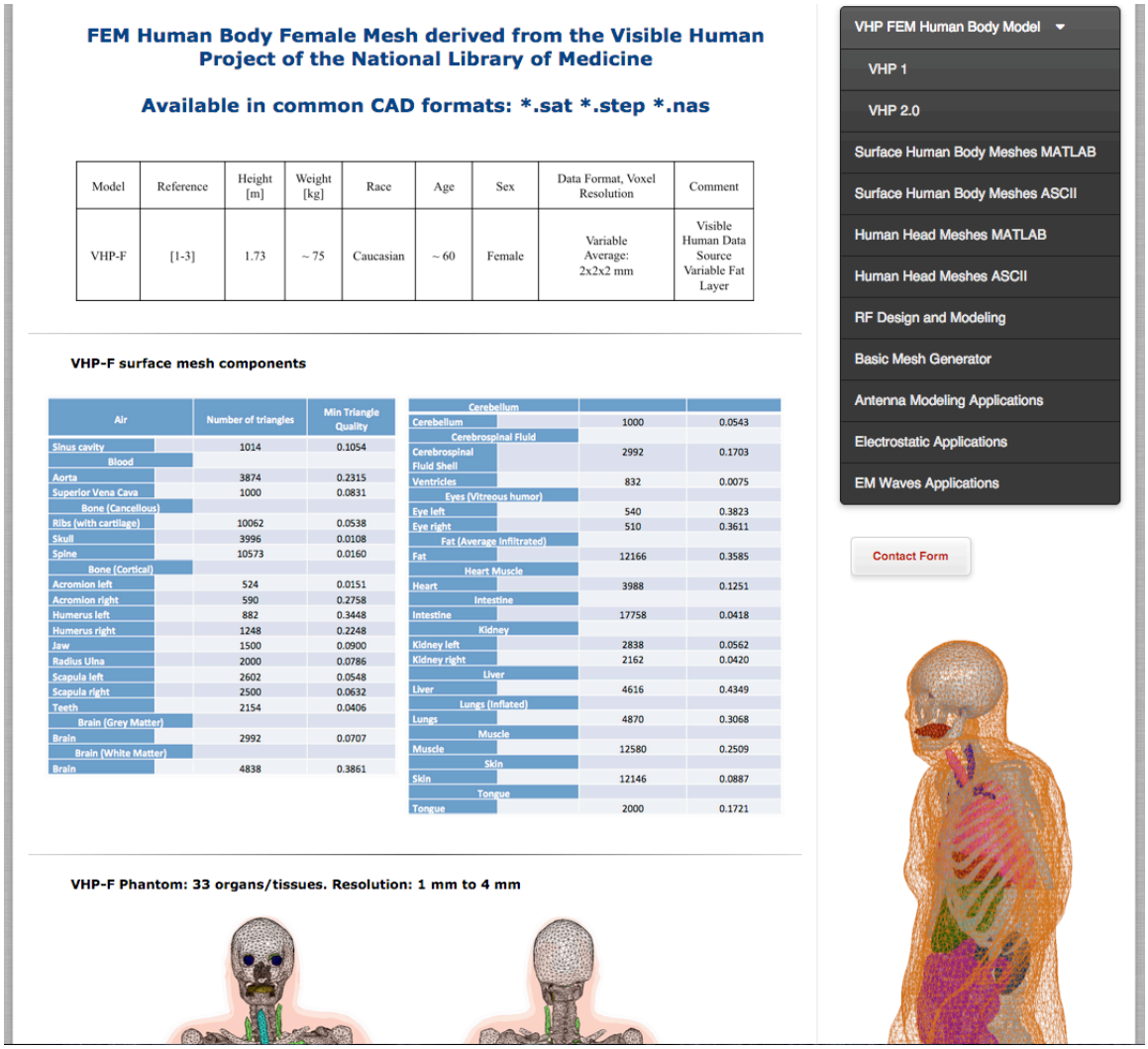



**Figure 4: Products page**

Even a bigger flaw is that if the user is looking for the VHP-Female v2.0, and arrives on the 'Product' page, it will try to click on the 'VHP FEM Human Body Model' on the right menu and it will be brought up to the page shown in Figure 5. This page corresponds to the older version of the VHP model instead of the newer one that the company currently supports and wants to sell. The same problem occurs if the user is on a different product and wants to check out the new VHP-F v. 2.0, if he clicks on the right menu on 'VHP FEM Human Body Model', it will be brought to the VHP v. 1 page instead of VHP v. 2 page.



**FEM Human Body Female Mesh derived from the Visible Human Project of the National Library of Medicine**

**Available in common CAD formats: *.sat *.step *.nas**

| Model | Reference | Height [m] | Weight [kg] | Race | Age | Sex | Data Format, Voxel Resolution | Comment |
|---|---|---|---|---|---|---|---|---|
| VHP-F | [1-3] | 1.73 | ~ 75 | Caucasian | ~ 60 | Female | Variable Average: 2x2x2 mm | Visible Human Data Source Variable Fat Layer |

**VHP-F surface mesh components**

| Air | Number of triangles | Min Triangle Quality |
|---|---|---|
| Sinus cavity | 1014 | 0.1054 |
| Blood | | |
| Aorta | 3874 | 0.2315 |
| Superior Vena Cava | 1000 | 0.0831 |
| Bone (Cancellous) | | |
| Ribs (with cartilage) | 10062 | 0.0538 |
| Skull | 3996 | 0.0108 |
| Spine | 10573 | 0.0160 |
| Bone (Cortical) | | |
| Acromion left | 524 | 0.0151 |
| Acromion right | 590 | 0.2758 |
| Humerus left | 882 | 0.3448 |
| Humerus right | 1248 | 0.2248 |
| Jaw | 1500 | 0.0900 |
| Radius Ulna | 2000 | 0.0786 |
| Scapula left | 2602 | 0.0548 |
| Scapula right | 2500 | 0.0632 |
| Teeth | 2154 | 0.0406 |
| Brain (Grey Matter) | | |
| Brain | 2992 | 0.0707 |
| Brain (White Matter) | | |
| Brain | 4838 | 0.3861 |

| Cerebellum | | |
|---|---|---|
| Cerebellum | 1000 | 0.0543 |
| Cerebrospinal Fluid | | |
| Cerebrospinal Fluid Shell | 2992 | 0.1703 |
| Ventricles | 832 | 0.0075 |
| Eyes (Vitreous humor) | | |
| Eye left | 540 | 0.3823 |
| Eye right | 510 | 0.3611 |
| Fat (Average Infiltrated) | | |
| Fat | 12166 | 0.3585 |
| Heart Muscle | | |
| Heart | 3988 | 0.1251 |
| Intestine | | |
| Intestine | 17758 | 0.0418 |
| Kidney | | |
| Kidney left | 2838 | 0.0562 |
| Kidney right | 2162 | 0.0420 |
| Liver | | |
| Liver | 4616 | 0.4349 |
| Lungs (Inflated) | | |
| Lungs | 4870 | 0.3068 |
| Muscle | | |
| Muscle | 12580 | 0.2509 |
| Skin | | |
| Skin | 12146 | 0.0887 |
| Tongue | | |
| Tongue | 2000 | 0.1721 |

**VHP-F Phantom: 33 organs/tissues. Resolution: 1 mm to 4 mm**



Figure 5: VHP1 page

## 4.2 From the user's perspective

From the user's perspective, the website's design is not naturally portable to mobile devices. Figure 6 is a print screen taken from an android phone with a 6-inch display.

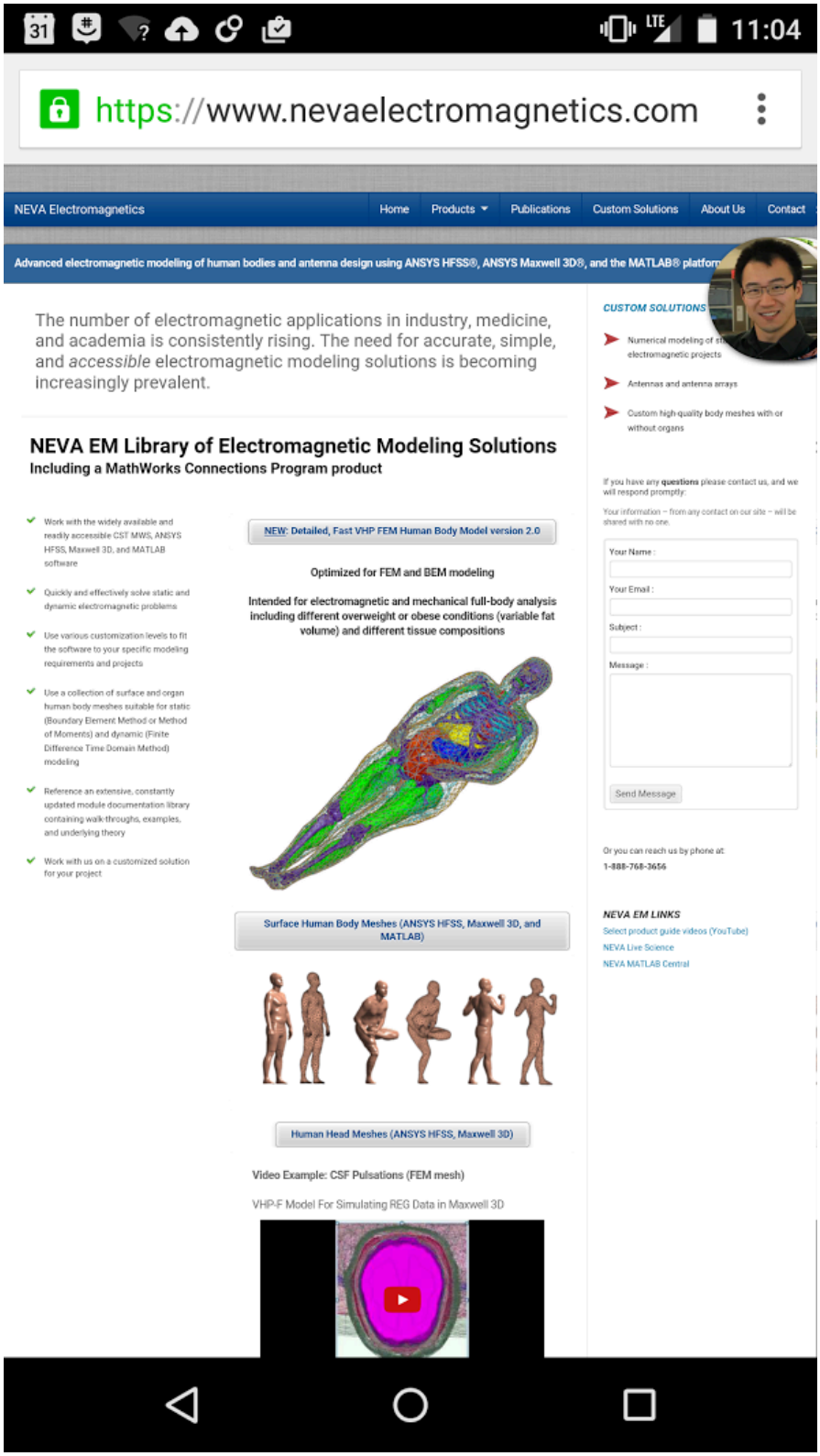



**Figure 6: Screenshot from a 6-inch mobile display**

As it can be seen from the picture, the display is adjusted to mobile phones just by shrinking the size of the elements. However, from a UX perspective, the user cannot read the information posted on the page unless he zooms in. Since this can create an inconvenience and getting to the information wanted may require more time that the user is willing to spend on the page, he may just give up in trying to find the information.

Another issue that occurs due to the lack of portability is the product menu, which impedes the user from getting to the most important product. Because there is no hover on the mobile world, the design flaw presented in the previous section – if the user clicks on ‘Product’ page, then he needs to click twice more in order to get to the VHP-f v2.0 – is much harder to handle. The only way to access the main product from the home page is to click on the image. Since clicking on the image is not something standard on all websites, the user is likely to try to access the main product from the ‘Product’ menu. Since there is no hovering in the mobile world, there will be no way to get to the page he wants to unless he goes through the design flaw, i.e click on products, then click on VHP, then click on its second version.

Another case when the user may have to go through the same flaw is when he liked the main product and wants to find more about the team and goes on the ‘About Us’ page. If he desires to find the page with the main product again, the natural way would be through the products menu, which brings him back to the flaw.

Another very important issue is the absence of a company logo. Although the importance of logo and the amounts of resources that should be put into the design of a logo is not clear at the moment, not having one strongly affects users' experience. The biggest problem is that the lack of a logo decreases the trust in the website when it is seen for the first time. Another issue that one can think of is the case when the user has multiple tabs open in his web browser and the easiest way to distinguish among the opened websites is by their logo. Therefore, in the case when the user gets distracted by some other opened website, it is unlikely that he will put all the effort needed to find the website he was navigating on if he cannot see the logo. For example, Figure 7 contains an example of a navigation bar that one can have at a given moment. It is very easy to identify websites such as Facebook, Gmail, Google Search based on their logos, but it is impossible to realize which one is NEVA in this case. Moreover, in the same picture, the middle tabs are all with NEVA, but since the first letter is 'H' on the title, it makes it hard for someone to associate it with the company he was looking for. The reason why the letter 'H' appears is because the title for the homepage is 'Home' instead of something more intuitive such as 'NevaEM'.

**Figure 7: Tabs in a modern browser**

Yet another issue that can be seen form the first page and persists throughout the website is verbosity. Although the website contains pictures that link to the important products of the website, there is no visualization that links to the paragraphs. Considering the fact that people don't read information on the Internet (fact discussed in the background section), it is very likely that not many of the paragraphs on the left side of the page will be read.

# 5. Market analysis and tools chosen

There exist a multitude of Web Services and the field is also extremely volatile. The trends have been in constant change and the popularity of languages and, implicitly, the web services associated with them have had unexpected ups and downs (Tiobe Software, 2015). Therefore, instead of focusing on finding the best solution at the moment that is anyway likely to change in the future, it is better to focus on the requirements and finding good tools that can solve the problem and that are likely to be maintainable in the future. The requirements received from the owners were the following:

- Find a good hosting server
- Create a new design for the website
- Use a web builder that the owners can use in the future.

## 5.1 General decisions

It is impossible to treat each of the requirements individually before deciding upon some general directions. Although the server and the website are different and can usually be completely split, the services offered are many times interconnected. The main constraint is given by the web builder chosen since several of them require special types of hosting.

The approach chosen was to first find a web builder that suits the owners' needs in the best way and then choose a web server that complies with the builder chosen.

## 5.2 Choosing the Web Builder

There are two main types of software that support the creation of a website. The first one is Content Management System (CMS), and the second one is website builder. A CMS is an application that offers services such as adding, editing and deleting information from a graphical user interface (GUI). A website builder is an application that provides functionality for creating a website that does not involve interaction with the code. Because the developer of the new website is familiar with coding and web technologies, both of them are considered equally. The end goal of the project is creating a website that is easily maintainable and modifiable rather than finding the easiest way to build a website. Since for the sake of this project, the difference between CMS and website builder is insignificant, the term 'Web Builder' will be used in the report to replace CMS and website builder unless the context requires more clarification.

The Internet contains a multitude of Web builders and choosing the best one is hard. One list of them can be found in (Web Builders Guide, 2015). The approach taken on choosing a web builder was identifying the most popular solutions on the Internet, offer each of them a short period of testing and then perform a market

analysis focused on what was considered to be most relevant for the company. The short period testing consisted in about a week in which the creation of some sample websites was tried.

From all the web builders found online, the ones decided to be tested were: Wix, Weebly, Squarespace, Concrete5 and Wordpress. In order to choose the best one of them, a highly customized market analysis has been performed. The factors taken into account in this market analysis are the following: ease of use, flexibility, portability, ease of setup, cost and designer familiarity. The factors 'ease of use' and 'ease of setup' are decided based on the one-week trial. Although the website is created for the owners of the company, the designer's familiarity with the tools chosen were considered important because the new website needs to be entirely redesigned in a relative short amount of time. The weights are assigned from a scale of 1 to 6 where 1 means not very important and 6 means very important. The weights give to each to of the factors can be seen in parenthesis below its corresponding factor in Table 1. Each of the Web builders will receive a grade from 1 to 3 on each of the factors. In order to decide which one is the best, take the sum of each of the grade multiplied by their correspondent weight. Then the biggest values correspond to the better choice.

### Table 1: Market analysis for choosing the web builder

| | Ease of use (6) | Flexibility (6) | Portability (6) | Ease of setup (2) | Cost (4) | Familiarity (3) |
|---|---|---|---|---|---|---|
| Wix | 2 | 2 | 1 | 3 | 3 | 1 |
| Weebly | 3 | 3 | 3 | 3 | 2 | 1 |
| Squarespace | 1 | 2 | 3 | 2 | 2 | 1 |
| Concrete5 | 3 | 2 | 3 | 1 | 3 | 2 |
| Wordpress | 3 | 2 | 3 | 3 | 3 | 1 |

The final values of the analysis can be found in Table 2. As it can be seen Wix and Squarespace do not comply with the needs of this particular website. The other three are very close to each other and before deciding upon one of them, more investigations need to be made.

### Table 2: Results of market analysis

| Web builder | Value |
|---|---|
| Wix | 51 |
| Weebly | 71 |
| Squarespace | 51 |
| Concrete5 | 68 |
| Wordpress | 69 |

After better familiarizing with the other three tools well, it was decided to use Concrete5 because the owners and the designer felt most comfortable with.

### 5.3 Choosing the Web Server

Instead of performing a market analysis similar to the one used for choosing the web builder, the server was chosen by agreement between the developer and owners. Although the Web Server is a significant component in the creation of the website, it is more important to the developer than it is for the owners. Ideally, as soon as the website is given to the owners, they should not have to interfere with the web server anymore and should do everything using the web builder. An advantage of the fact that the setup is made by a developer is that there is no need for expensive plans that help setting up and maintaining the server; in the current case, a cheaper solution with minimal functionality suffices all the needs.

The web builder chosen was Concrete5. All its system requirements can be seen at (Concrete5, 2015), which shows that an AMP stack (Apache, MySQL, PHP) suffices all the requirements. Because of the developer's prior experience with AMP stacks on Amazon Web Services was satisfactory, the final decision made was to choose it as the Web Server of this website. Also important to be mentioned is that this decision is cheaper than what the company is currently using.

# 6. The design of the website

In Section 4 where the current website was analyzed, the main issues with the current design occur because the website served for different purpose over time. It is very important that a clear purpose is being established before designing. Then the website needs to be designed and built strictly around that purpose.

Initially the website served as a commercial opportunity for serving custom solutions along with presenting and selling some products related to electromagnetic simulations. In the meantime, the VHP became the main product of the company and the other products became less representative. Because the website was modified by building on top of what was existent at the time new products were introduced, it was very hard to develop a proper user experience that leads towards the most important products.

## 6.1 The purpose of the website

At the moment, NEVA's main focus goes in their main product, the Visible Human Project (VHP). Over time, the product has been optimized and advanced. Its current version is VHP-f v2.0 and it contains meshes for more than 100 tissues that can be used in electromagnetic simulations. The front view of the product can be seen in Figure 8.

**Figure 8: VHP v2.0**

Recently the company has made a deal to license the VHP-f v2.0 through ANSYS/HFSS. From here, the main purpose of the website was decided: building a website that presents the main product showing all updates, that points people to the place where they can buy it from, and that lets people know that NEVA offers

custom solutions; the website should also present the team, allow means of contacting the company and presenting its career opportunities.

### 6.2 Designing a new website

Building from the purpose, it can be seen that much of the content from the previous website is obsolete and not needed. To keep it as simple as possible and at the same time to present all the content needed, the following pages are used for the following purposes:

- Homepage that represents the first interaction between the company and the user
- VHP-F V2.0 where the contains the details about the product
- Page that presents the fact that the company offers custom solutions
- Careers page where the company can post job descriptions
- Page that presents the team
- Contact page that has the details of the company - its location and means of contacting it

Along with these pages, a blog page could be added in order to post smaller updates on the website that may even be used for social media promotion.

The menu was built such that it is portable to all screen sizes on different devices. Figure 9, **Error! Reference source not found.**Figure 10, **Error! Reference source not found.**Figure 11 and Figure 12 represent the final versions

of the menu. Figure 9 represents the menu as it is being shown on wide screens where the whole content can be shown. Figure 10 represents the menu shown on a different format on smaller screens that are still wide enough to show all the pages. Figure 11 represents a ‘Hamburger menu’ that is shown on smaller screens and **Error! Reference source not found.**Figure 12 represents the hamburger menu expand.


**Figure 9: Menu wide screen**

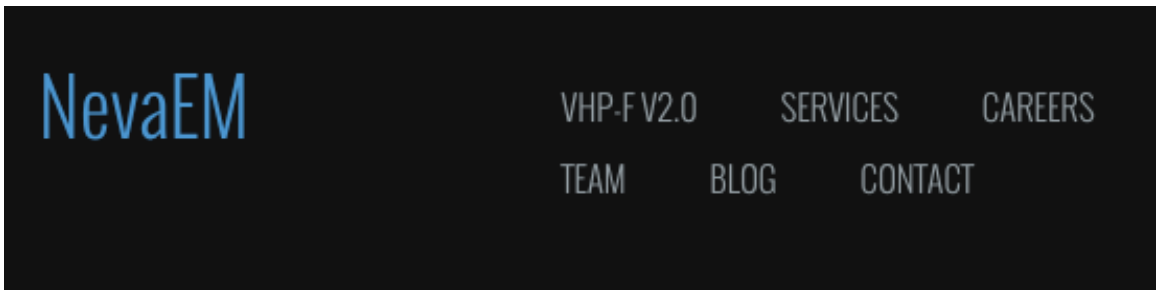



**Figure 10: Menu mid-size screen**


**Figure 11: Hamburger menu on small screens**

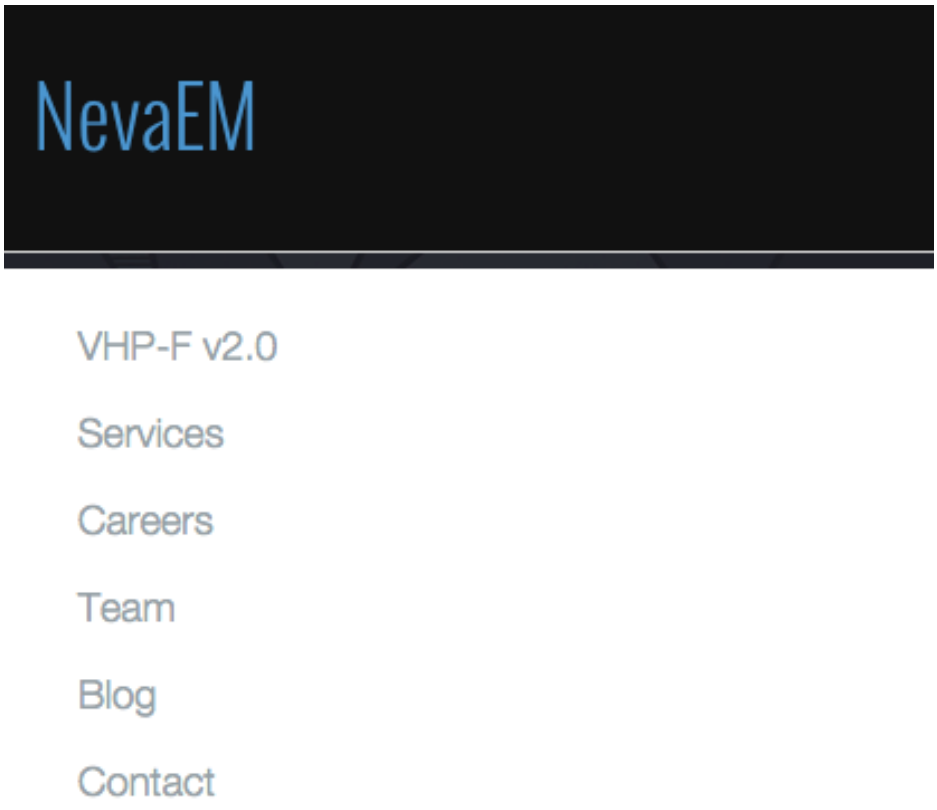



**Figure 12: Hamburger menu expanded**

The order in which the items appear in the menu is consistent. This specific ordering has been chosen keeping the priorities in mind.

The first page shown is ‘VHP-F v2.0’, which represents the most important product. It was chosen to be the first one because this is the most important page that needs to be accessed by as many users as possible. This page describes the product that brings most of the income for the company.

The second page is ‘Services’. It was chosen to be second because it is the second source of income for the company and it also serves as a legacy for the previous products of the company. If people are looking for the old products of

NEVA that were serving as custom solutions, they will most likely want to access this page.

The third and the fourth pages are related to the company itself. ‘Careers’ is the page where people interested in jobs related to electromagnetic simulations may want to access reason why it was placed before the ‘Team’ page that presents the owners of the company.

The fifth page is suggested to be the blog. The blog is something that only people interested in seeing it will ever access it and for those people it is not that important where it is placed.

The last page is the contact page. It was chosen to be the last one because the page at the end is also easily visible and this page is of crucial importance for people that want to get in contact with the company.

### 6.2.1 Homepage

The homepage is the page that users arrive on when they access the company’s URI. It is very important because most visitors will have their first contact with the website on this page. For all those people, the homepage will mark the beginning of their experience with the website. Since this is the first page users are in contact with and, as presented in the background section, users do not really read much content, it was decided to keep the content as minimal as possible and show images that empower the information.

In order to show the main images easier and catch the attention of the users, it was decided to use an image slider to direct the attention towards the most important information about the company and its products. Figure 13 and **Error! Reference source not found.**Figure 14 are the 2 images that appear on the slider. Because the time needs to be short so that the user sees both images even if he planned spending a short time on the website, the information on the images must be minimal. In Figure 14 the writing was limited to only three elements that can be read before the image switches. Along with the images, big titles contrasting the background were added. They give the most important information about the product while the smaller writing contains information that interested users may want to read.

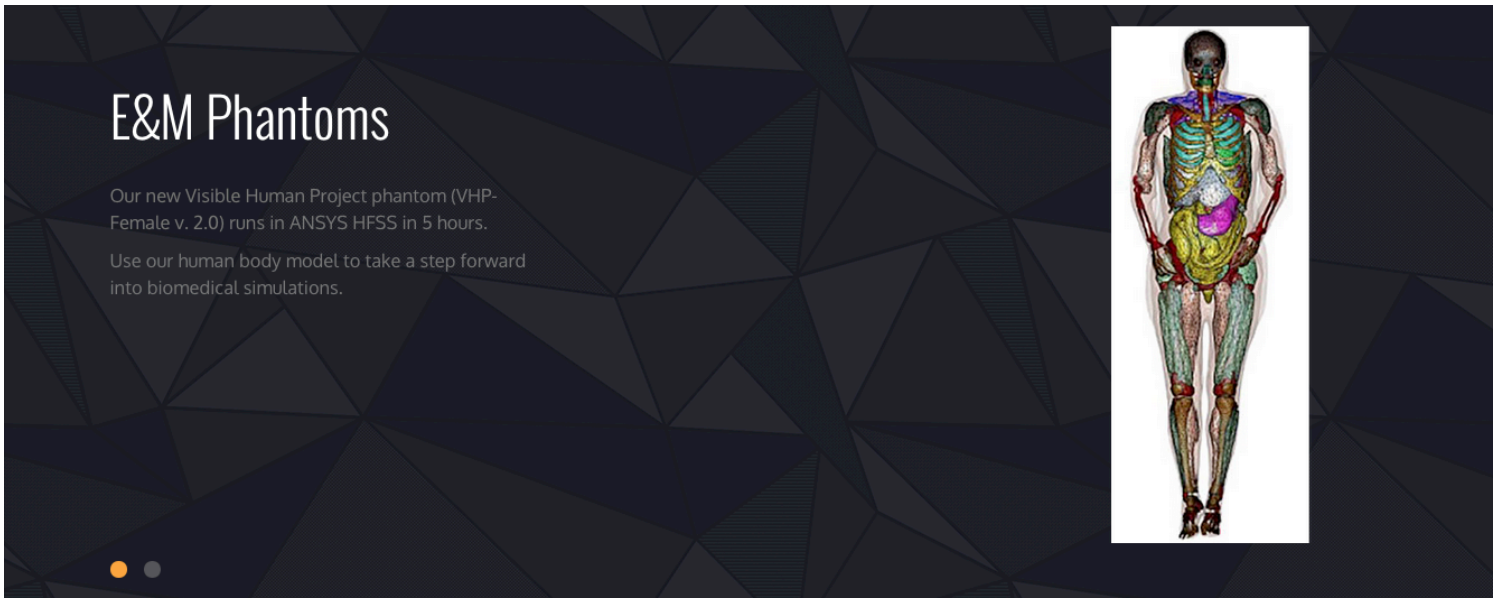



**Figure 13: Slider Image 1**

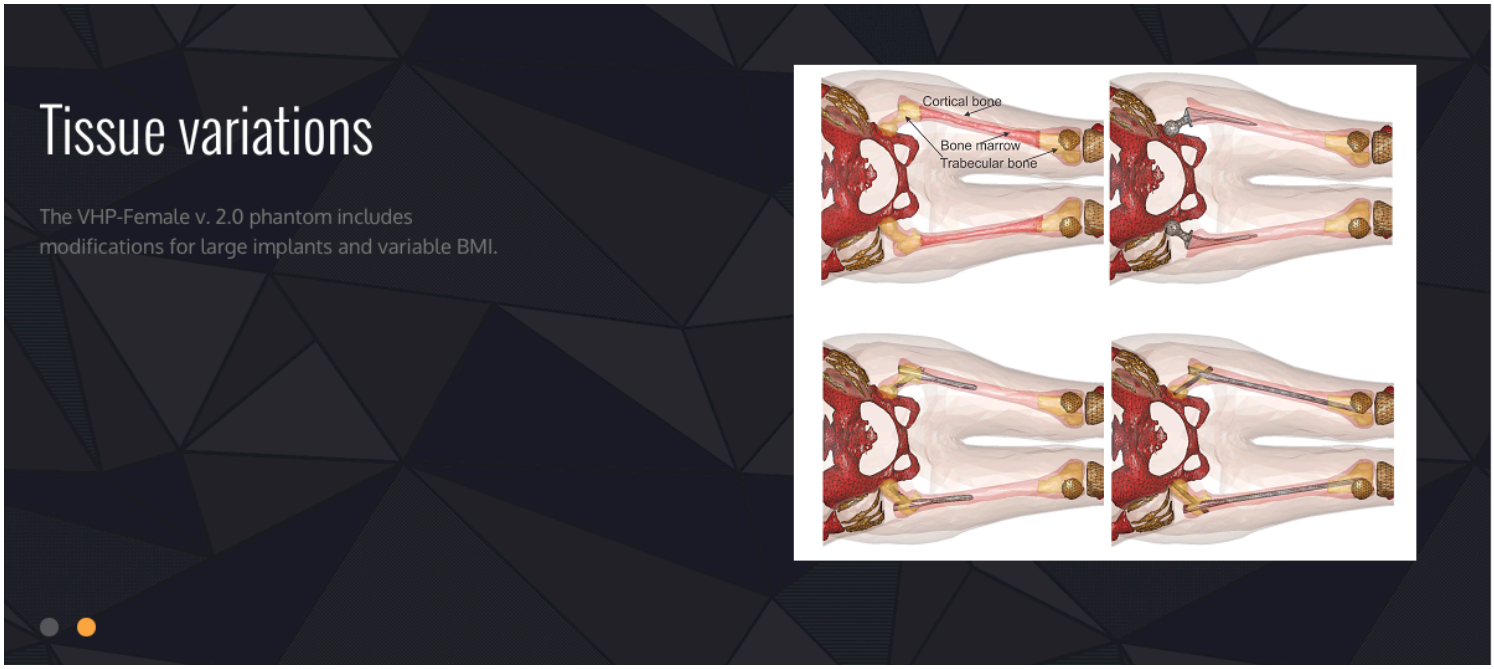



**Figure 14: Slider Image 2**

Another important aspect of the slider is its appearance on small screens. Figure 15 and Figure 16 represent the same contents presented in the previous two figures resized for a lower display. The main difference between bigger screens and smaller screens is that smaller screens do not have as much space for writing as the bigger ones and therefore it was decided to only show the title of the images and the user would need to scroll down the page in order to find more information about the company and the product.


Figure 15: Slider Image 1 small screen


Figure 16: Slider Image 2 small screen

Expanding on the user experience created by the images on the top of the page, it was decided to place the information about the company immediately below the image slider. It was desired to place content that contains much writing somewhere close to the slider such that the page doesn't get overloaded with words.

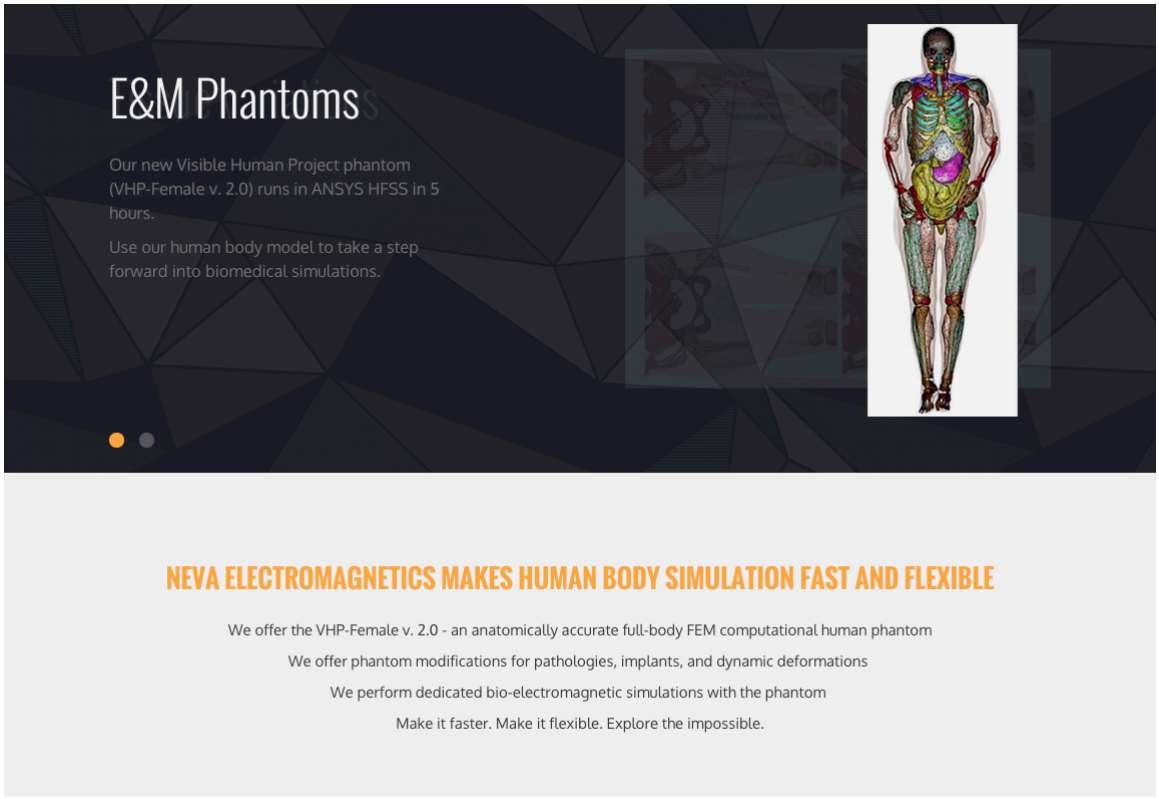



**Figure 17: Slider along with company description**

Figure 17 shows the slider together with the company description beneath it on a regular wide screen. The text is centered and in a wide screen format every sentence fits in one line. Figure 18 shows the same content on a thinner screen where the content remains the same and the paragraphs are still well separated.

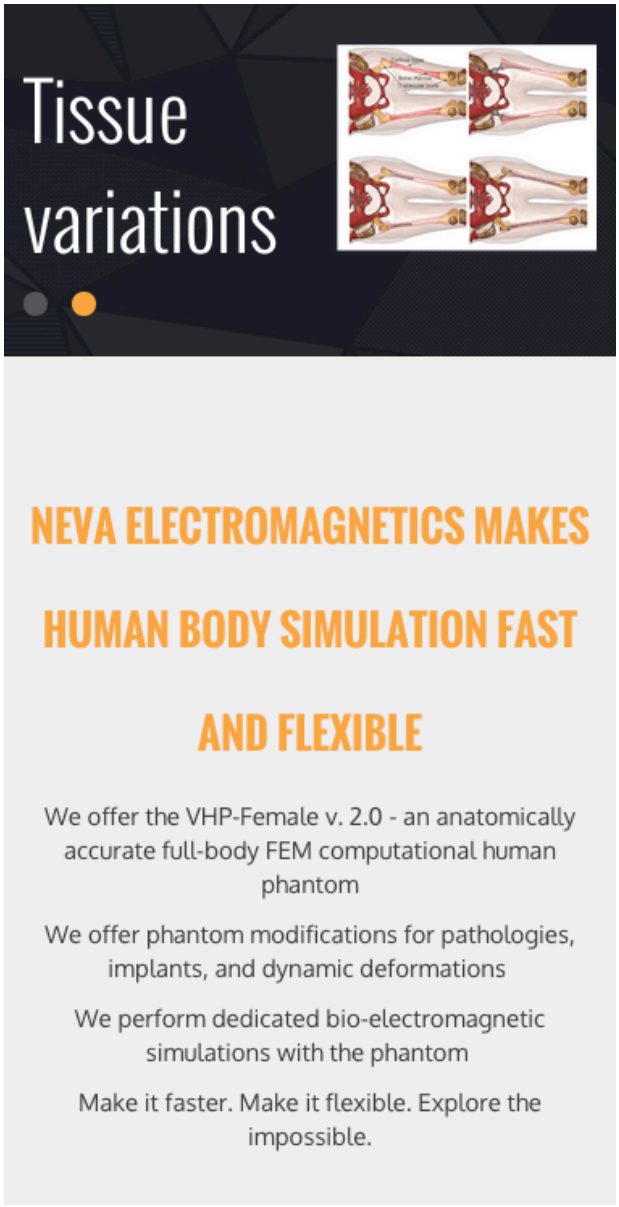



**Figure 18: Slider along with company description on small screen**

Beneath company's description, it was decided to place the description of the main product. The format for wide screens can be seen in Figure 19. The content comes immediately below company's description in the format of an image on the left side and written information on the right side. The written content only contains important keywords because the product has its own page that describes it in more

detail. Also, for convenience and consistency with the previous website, the image serves as a hyperlink to the page of the product.

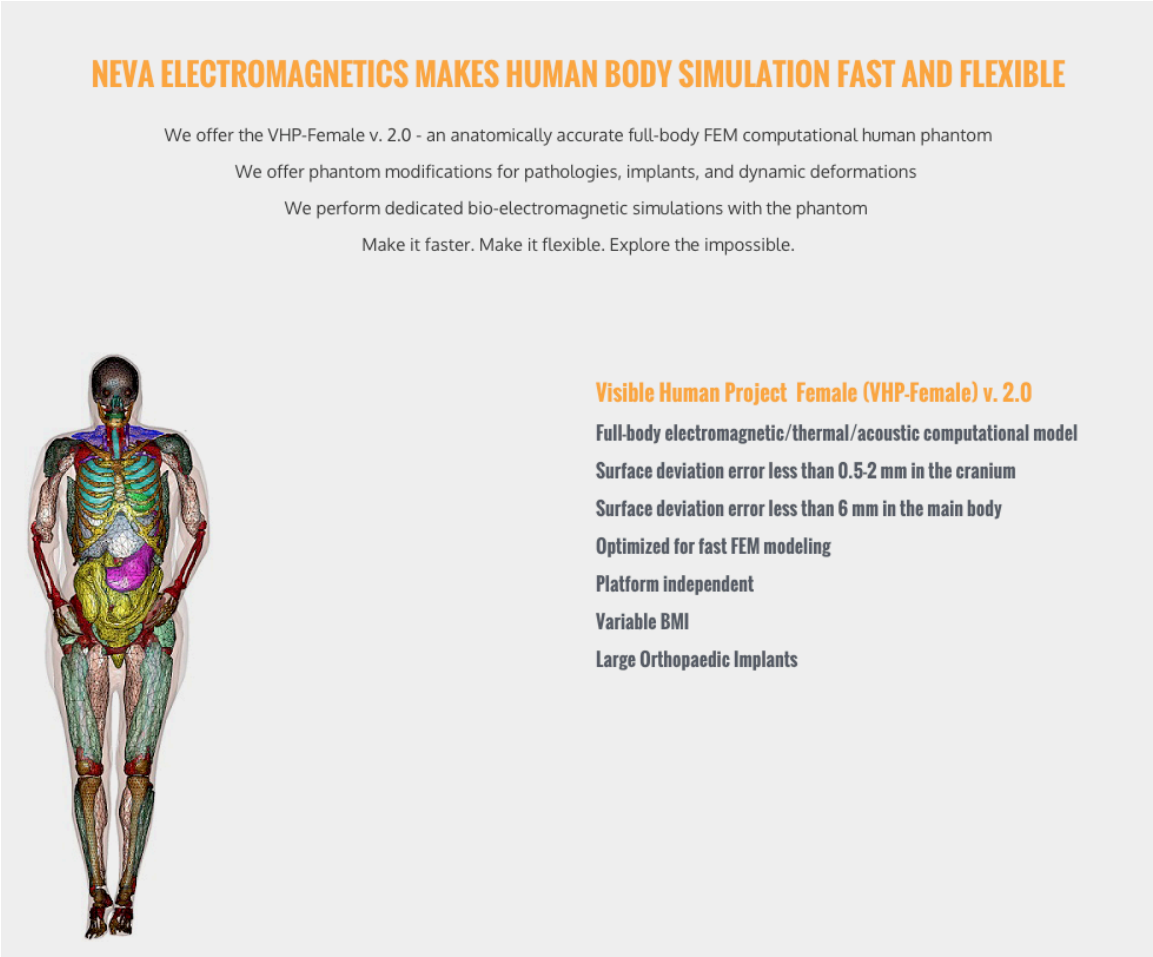



**Figure 19: Company and main product presentation wide screen**

In the case of smaller screens, the image moves on top of the writing to better position the elements such that the writing remains easy to read. This format can be seen in Figure 20.

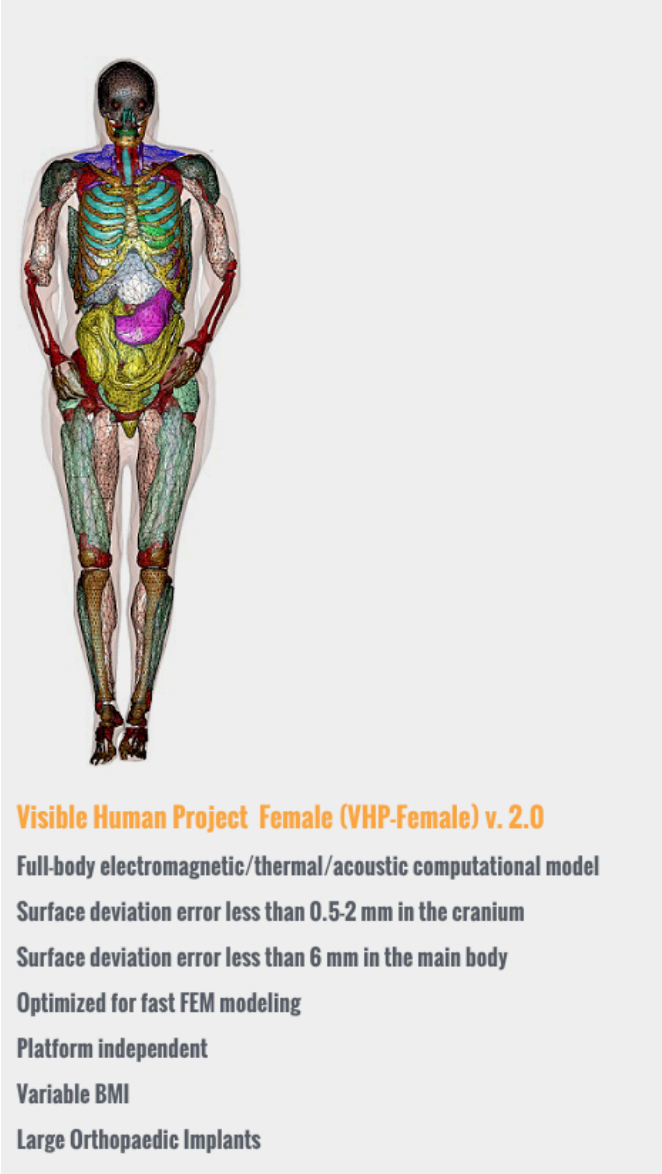



**Figure 20: Product description on small screen**

In the case where blog posts are used, the latest post will be showed below the product page.

At the bottom of the page, a button that leads to the contact page is positioned. The button can be seen in **Error! Reference source not found.**Figure 21 along with the bottom menu that is consistent across all pages of the website. The bottom menu contains information about the company, hyperlinks to company's social

media accounts and hyperlinks to content on the website that may not necessarily need to be part of the main menu.

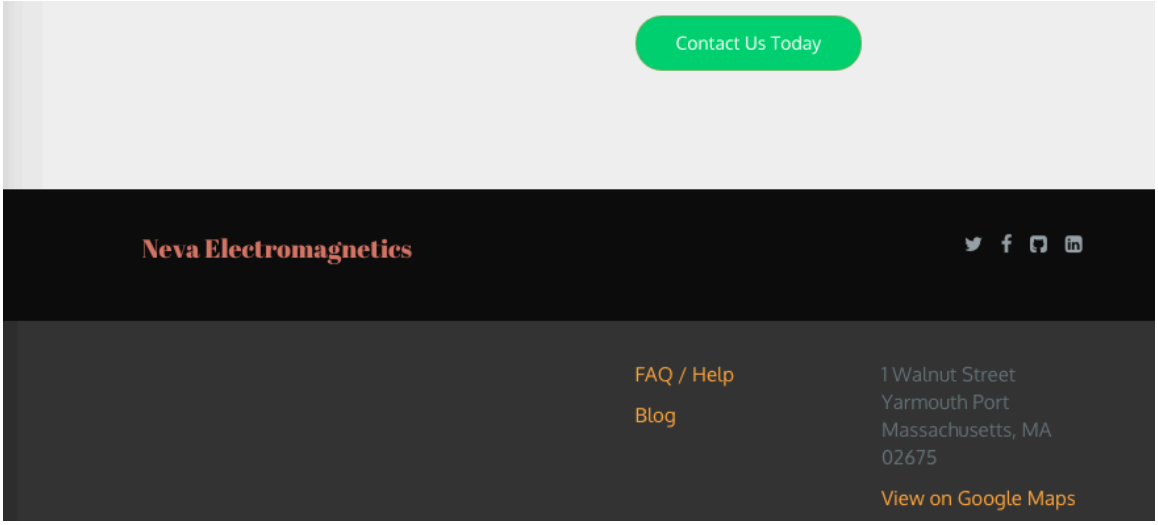



**Figure 21: Contact button and bottom menu**

### 6.2.2 VHP-F V2.0 page

VHP-F V2.0 is the page that has the details of the main product. Users are likely to access this page if they are interested in learning more than it is presented on the homepage, reason why it needs to contain more detailed information. Trying to make the content easier to be seen, it was decided to use another image slider that spends more time per image and allows more complex content to be placed on it. Figure 22 and Figure 23 are examples of two images that can be placed in the slider. They contain more information that someone who is trying to learn more about the product may want to learn.

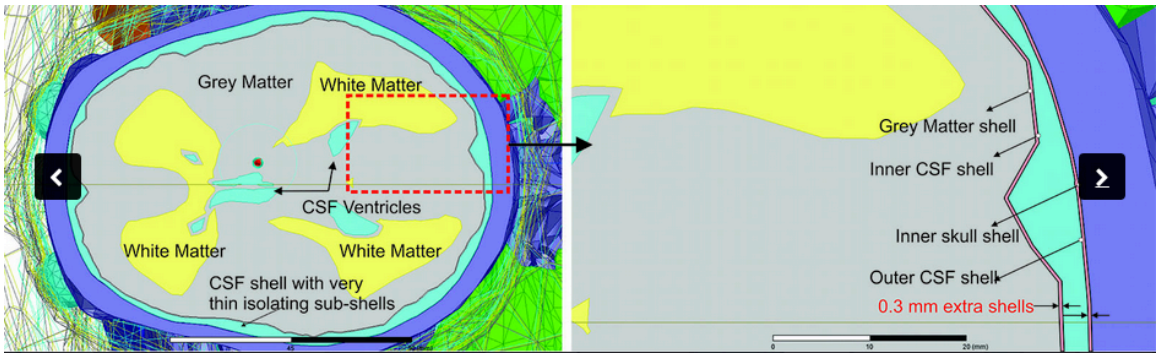



**Figure 22: Product page image slider 1**

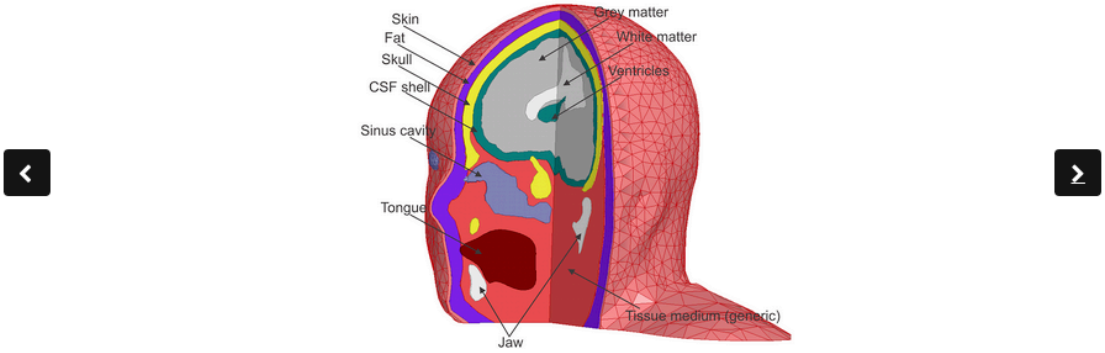



**Figure 23: Product page image slider 2**

Immediately below the slider is placed the most important information, i.e. how to get the product. As mentioned above, the product is licensed through ANSYS/HFSS, reason why the first content of the page links to ANSYS/HFSS' page. After the information about acquiring the product, a more detailed description is organized in three main categories:

1. Source – which contains information regarding the origin of the phantom
2. Phantom Description – which contains information regarding the mesh
3. Phantom Features - which contains information about how the human body can be modified in order to perform customized simulations on it

The page content can be seen in Figure 24 and Figure 25.


**Figure 24: Product page upper content**


**Figure 25: Product page lower content**

### 6.2.3 Services page

Services page is the page where people interested in custom services should land on. It was designed to be as simple as possible, focusing mostly on giving

people the information needed in case they want to contact the company with their problems. Moreover, this page also contains some of the most important partners that give credibility to NEVA.


**Figure 26: Services page**

As it can be seen in Figure 26, the top of the page contains the email address and the phone number that can be used to contact the company. Immediately below the contact information were placed the three most important partners. The small screen of the version keeps the elements in the same order and keeps the text at the same size although it may need to use multiple lines.

### 6.2.4 Careers page

Careers page addresses people that are looking for jobs. It was decided to use a design that is flexible and allows multiple offerings to be posted. The page starts

with an introductory line that states the fact that the company is looking for new people followed by the jobs and their descriptions.

An example can be seen in Figure 27, where there is only one job posted. On the wide screen shown in this figure, the positions will be posted on the same side of the screen, one under the other.

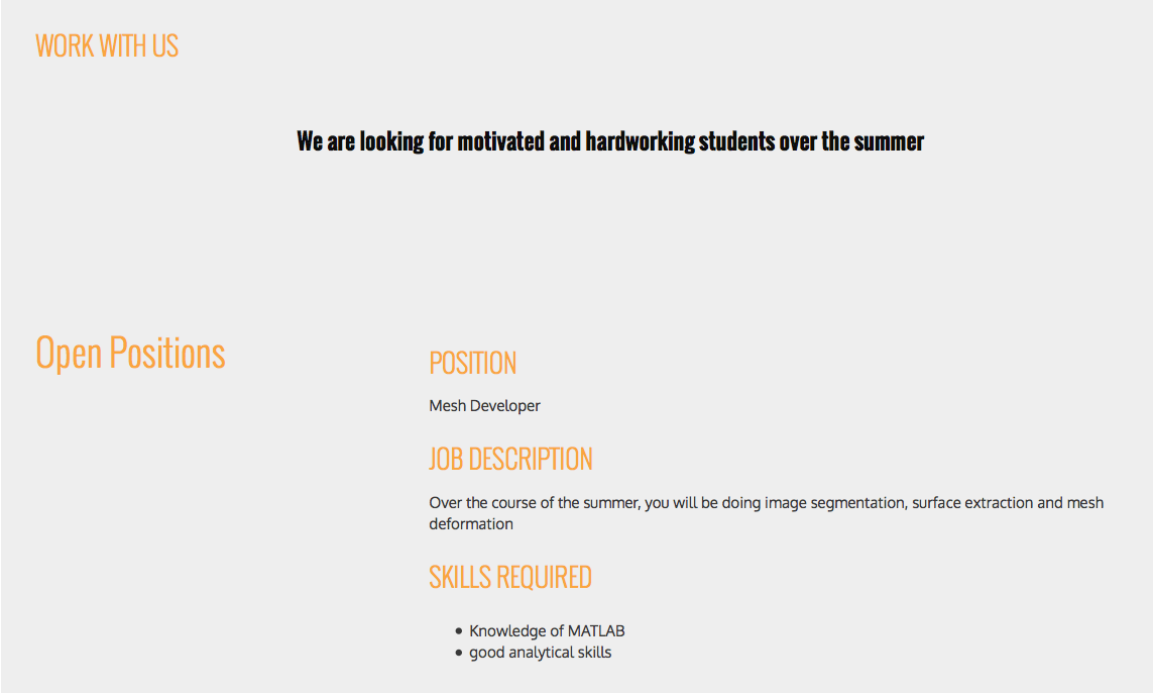



**Figure 27: Careers page wide screen**

In the resized version for small that can be seen in Figure 28, the title ‘Open Positions’ is moved on top of the positions and their descriptions that would also be placed one under the other.


**Figure 28: Careers page small screen**

### 6.2.5 Team page

The idea behind the team page was to give more credibility to the people accessing the website. It was decided that brief information about the two owners suffices in order to prove people that they are specialists in their field. The

widescreen version presented in Figure 29 shows the two owners on the same level. The resized version contains bigger images as shown in Figure 30 and places the two owners one below the other.

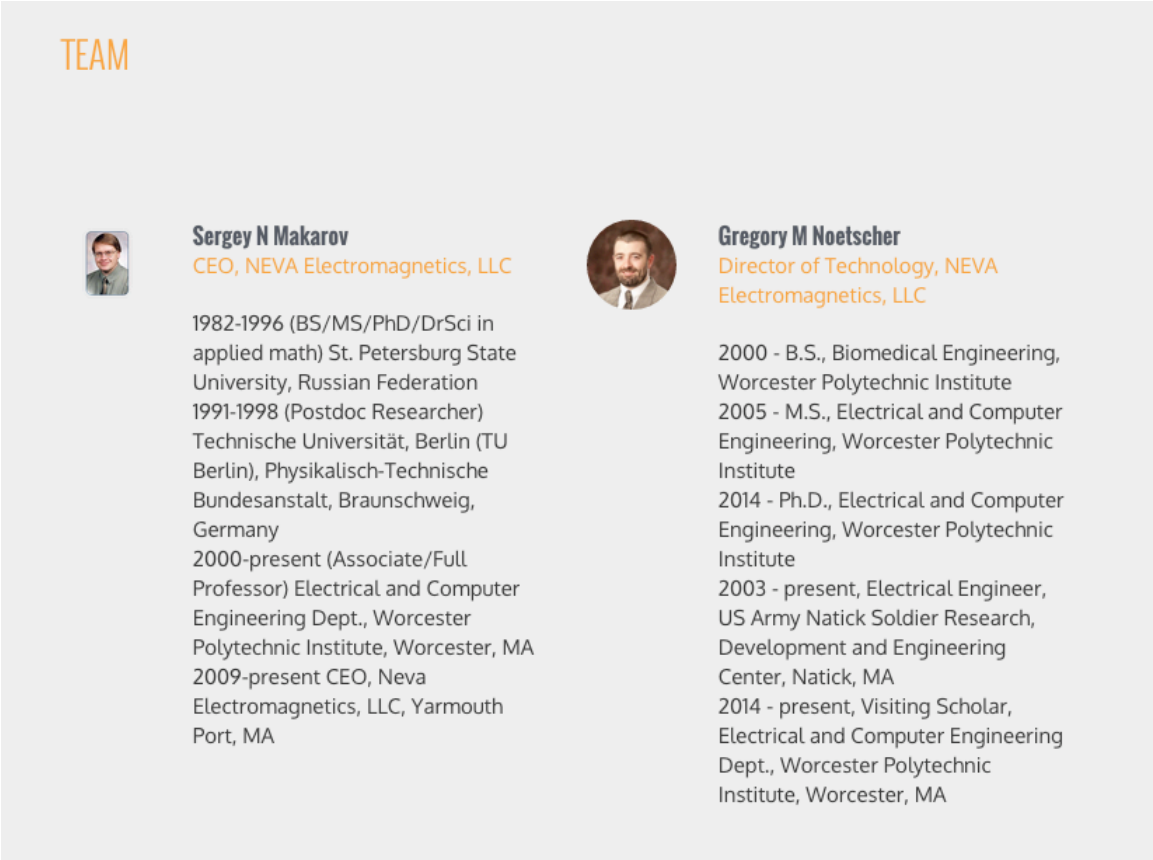



**Figure 29: Team page wide screen**


**Figure 30: Team page small screen**

### 6.2.6 Contact page

The contact page on the new website has been completely redesigned. The content page on the current website did not contain much information and it consisted on a form that people could submit questions. More information is shown in order to offer credibility to the website. The new design contains an interactive

Google map with the address of the headquarters, the hours of operation, and contact information.

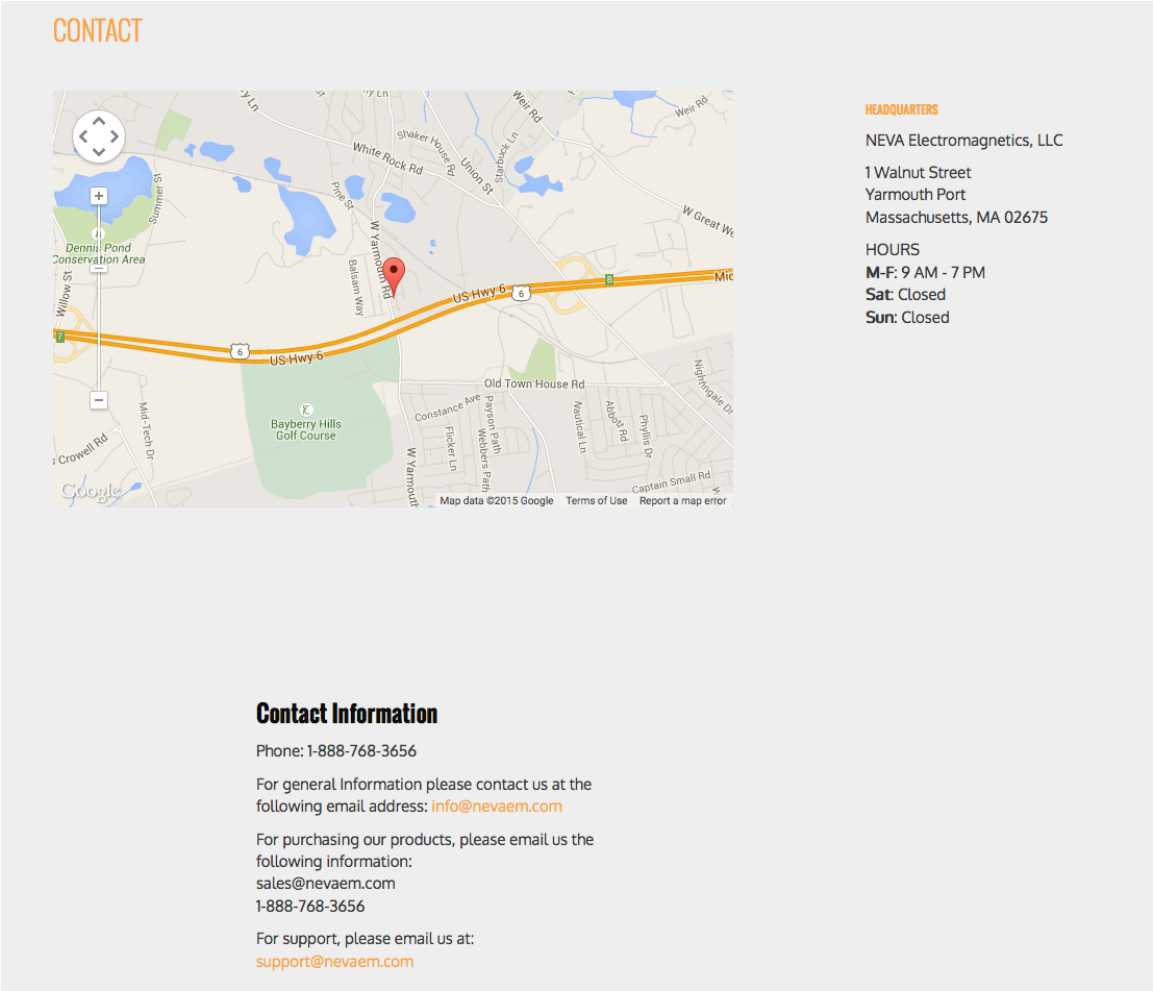



**Figure 31: Contact page wide screen**

The design printed on a wide screen is shown in Figure 31. The design for a small screen is shown in Figure 32 and Figure 33. Although there is more content than on the previous website, it is still kept to a minimum in order to maintain the simplicity of the website.

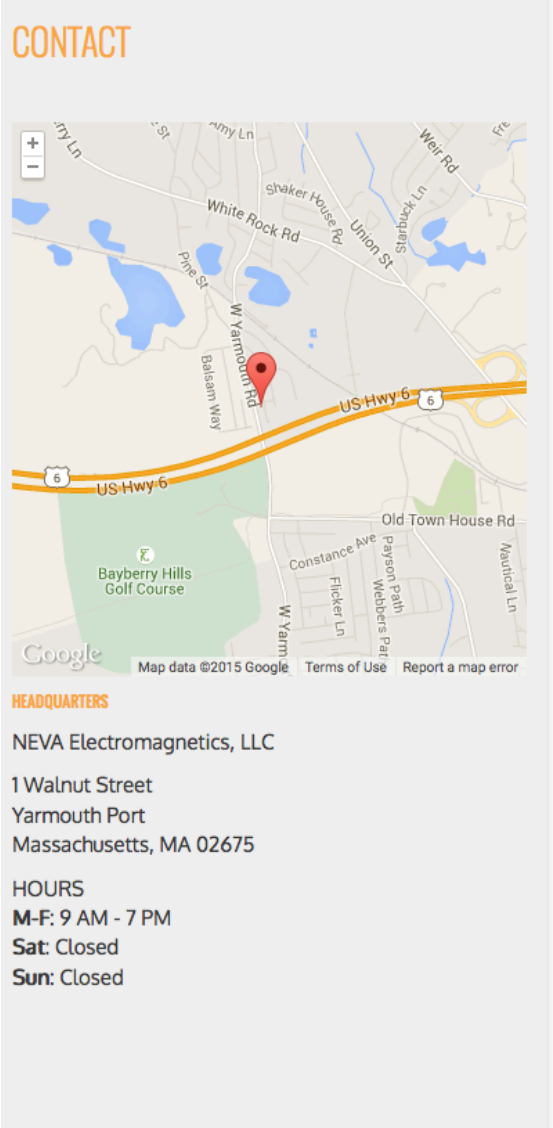



**Figure 32: Contact page small screen 1**

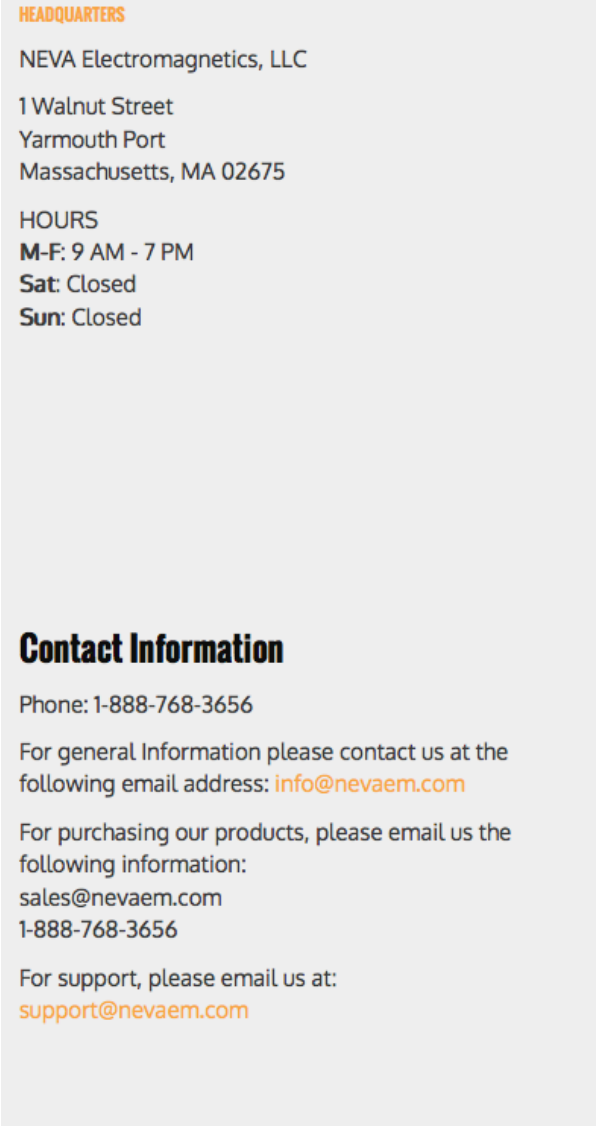



**Figure 33: Contact page small screen 2**

# 7. Maintenance and flexibility

The main goal of the project was not only creating a website, but creating a website that can easily be maintained and modified by the owners without the need of professional programmers. Because everything was built with the help of a web builder following a specific template, the resulting website should meet all the requirements.

## 7.1 Allowance of change

Although it is desired to have an interface that is easily modifiable, regular users should not be affected by it. Concrete5 solves this issue by showing the website whenever the user lands on it, but it allows modifications live on the website if the owners append '/login' to the home URI. For example, if a company has the website address 'www.easytomodify.com' and was built with Concrete5, in order to enter edit mode it needs to access 'www.easytomodify.com/login'. Before they are allowed to modify the contents, they will be prompted with a login page that asks for credentials. The page can be seen in Figure 34.

After the username and the password are introduced, the owner is taken back to the home page where the navigation on the website can be done in the same way as it is done by regular users. The only addition after the login is a Concrete5 menu bar on the top that allows the owners to make changes. An image that contains the

top part of the homepage and the Concrete5 menu bar is shown in Figure 35. An image with only the Concrete5 menu is shown in Figure 36.

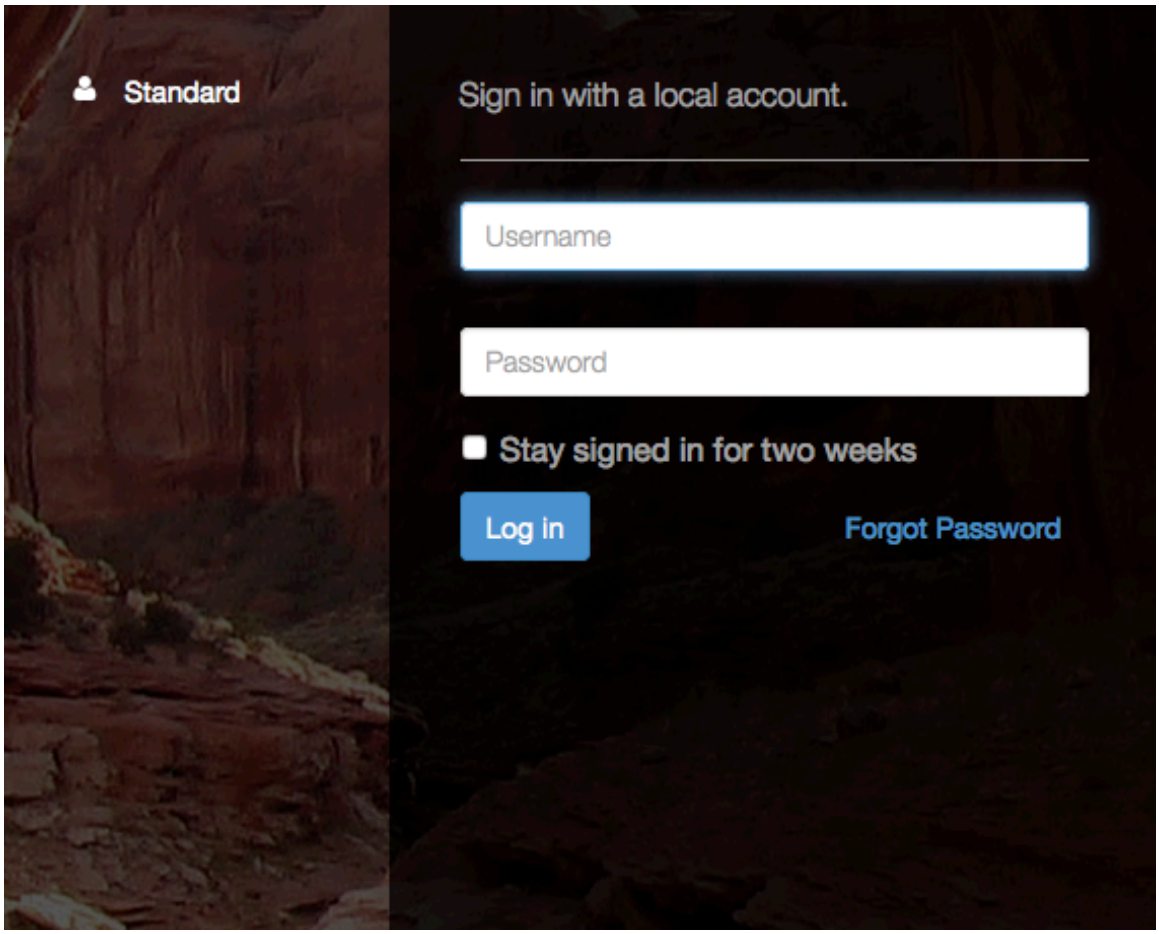



**Figure 34: Login page**

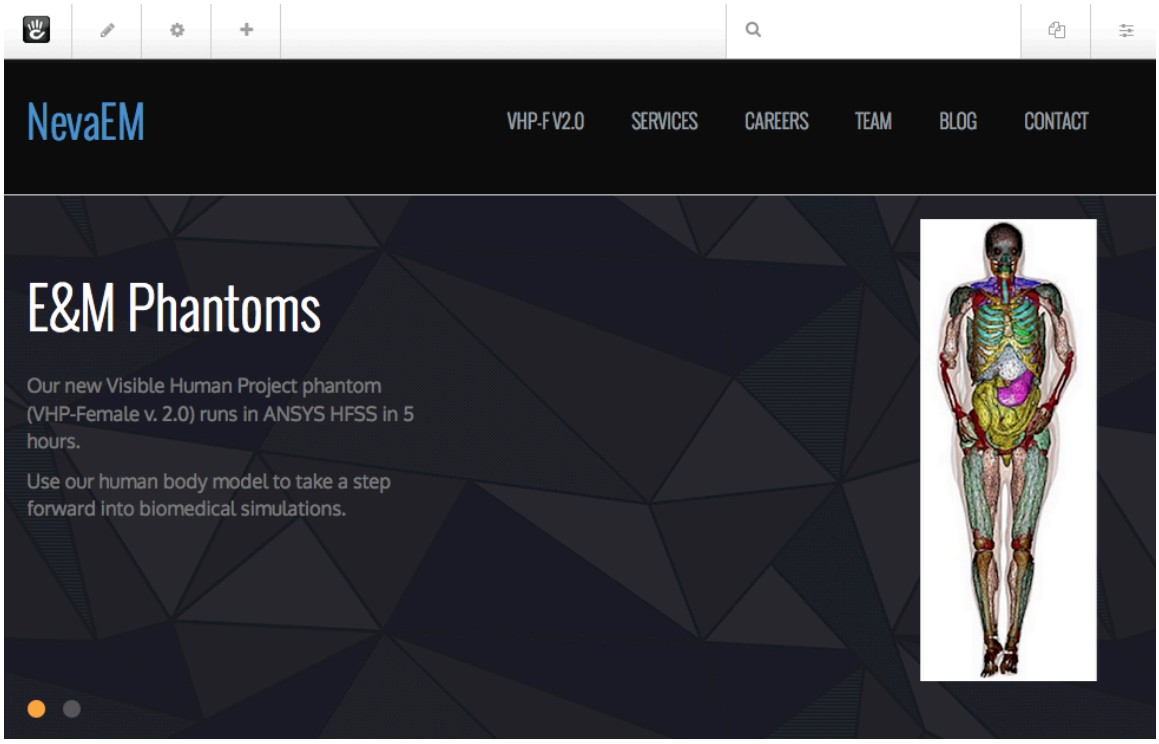



Figure 35: Home page with Concrete5 menu on top

Figure 36: Concrete5 menu bar

## 7.2 The dashboard

The dashboard is the panel that contains most of the important information that only owners can have access to. In order to access the dashboard – shown in Figure 37 –, they need to click on the rightmost element of the Concrete5 menu.

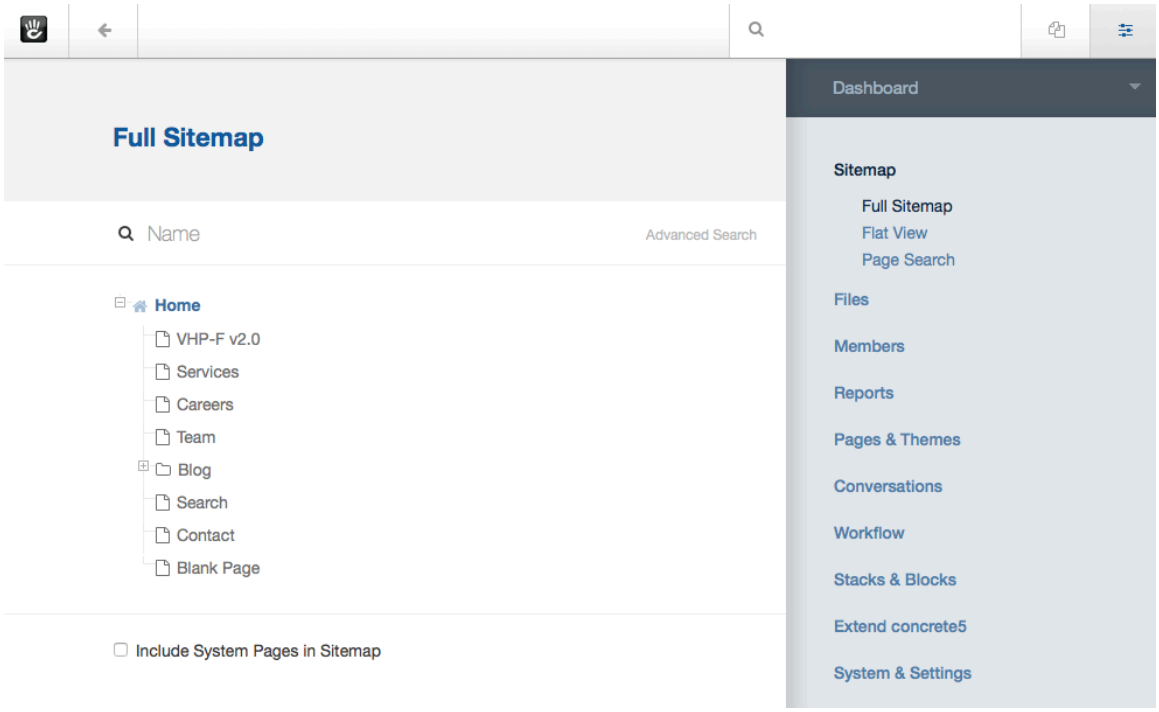



**Figure 37: Dashboard menu with sitemap accessed**

Figure 37 shows the first important submenu of the dashboard, i.e. the sitemap. The sitemap is the element that contains the whole structure of the website. All changes related to the main menu of the website should be done form the sitemap. Drag and drop is allowed on the sitemap and the order in which the elements appear top to bottom is translated on the website's menu left to right. For example, if

it is desired to move ‘Careers’ page before ‘Services’ page in the main menu, the owner only needs to drag ‘Careers’ to appear on top of ‘Services’.

In order to modify settings related to a page, clicking on an element from the sitemap brings another menu that allows the changes. Such a menu is shown in Figure 38.

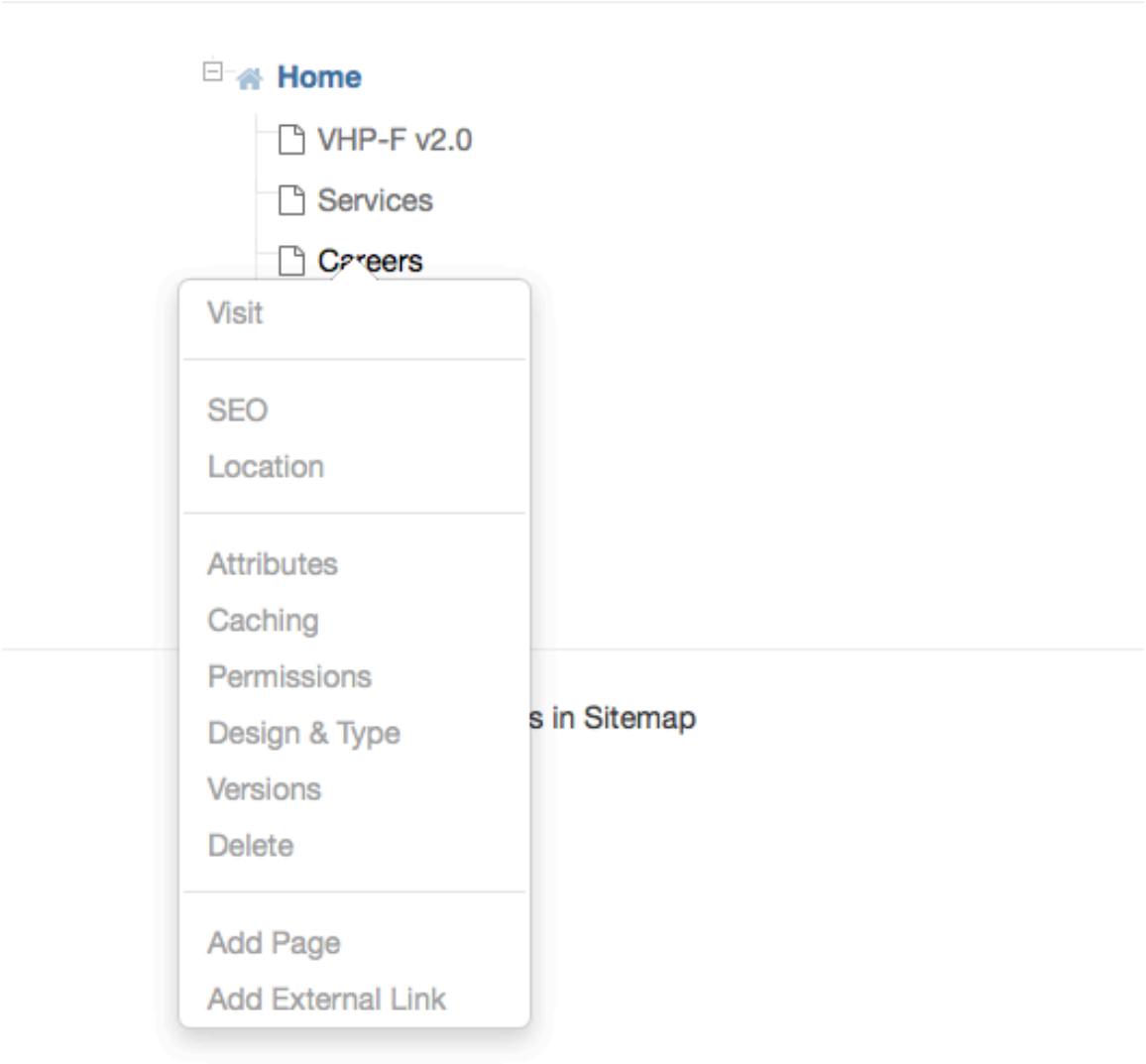



**Figure 38: Edit menu for sitemap**

The files submenu allows access to all the files contained by the website, both the ones showed to the users and those that are not. It is recommended to keep the

number of files as small as possible because this increases the easiness to search for files. Moreover, it is important to keep the number of files as low as possible because they are all stored into a database along with most of the information shown on the website. Too many files may significantly decrease the performance of the database and, implicitly, the performance of the whole website. The interface of the file manager is shown in Figure 39. It allows addition of files by dragging them on the top right part of the menu as it is indicated in the picture. It also allows deleting or editing multiple files by selecting them from the list shown under the GUI presented in Figure 39, then choosing a different option in the small menu that shows 'Items selected.'

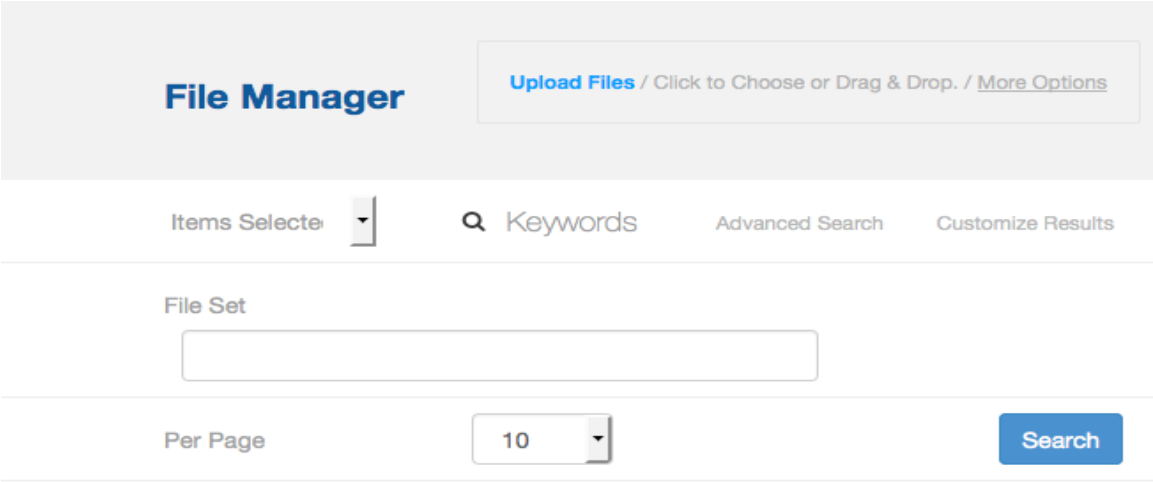



**Figure 39: File manager interface**

Similarly to the sitemap, a click on the file shown in the ‘File Manager’ interface offers the menu shown in Figure 40 that allows the owners to change the properties of the file.

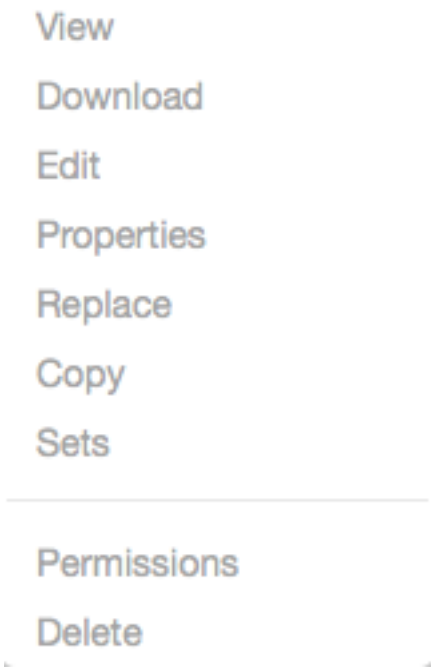



**Figure 40: Edit menu in file manager**

The members ‘submenu’ is also of high importance because it is the one that allows changing the permissions on the website. This menu allows adding users with different type of permissions.

The rest of the submenus are mostly related to adding or changing characteristics of the website that are related to the template, the stacks use, etc. One important page that can be found in the dashboard is ‘Attributes’ that is located under the ‘Pages & Themes’ submenu. This page allows accessing details related to Navigation and Indexing, and also details related to Search Engine Optimizations (SEO). Since even SEO settings can be made from a different menu that will be

presented later, unless the owners want to make a deep change on the design of the website, it is unlikely that they will need to interact much with them.

### 7.3 Page settings

Clicking on the middle button of the leftmost three in the Concrete5 menu brings the owner to ‘Page Settings’. This menu is of high importance because it offers settings related to the design, the attributes, the SEO, permissions and previous versions. An image of this menu is shown in Figure 41.

The design submenu shown in Figure 42 allows customization of the design related to the template. The changes related to the page template have effect only to the page this menu is accessed from. The changes related to the ‘Theme’ are changes that persist on the website and require a reboot before they apply. Clicking on ‘Customize’ under ‘Theme’ brings a very comprehensive menu that mostly allows changes related to the colors of the page (hovering, titles, links, image slider, etc.).

As mentioned before, SEO is the Search Engine Optimization that makes the information easier to obtain for search engines. Adding keywords in the SEO fields help the search engines find the content on your website. The SEO page can be accessed from ‘Page Settings’ and it offers the capability to add the important keywords.

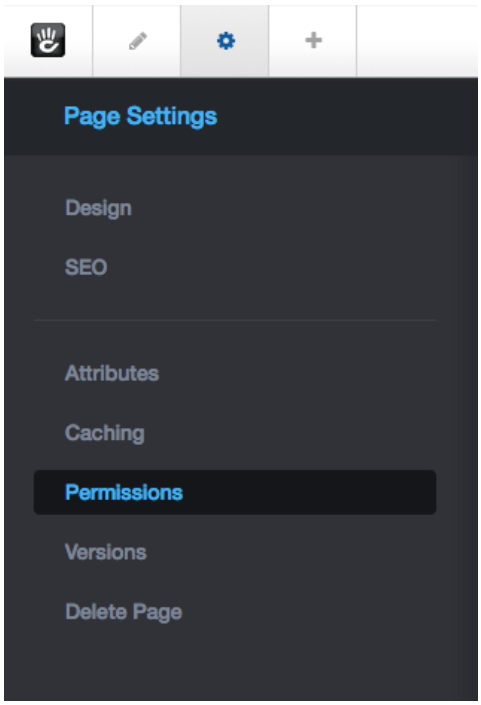



Figure 41: Page Settings menu

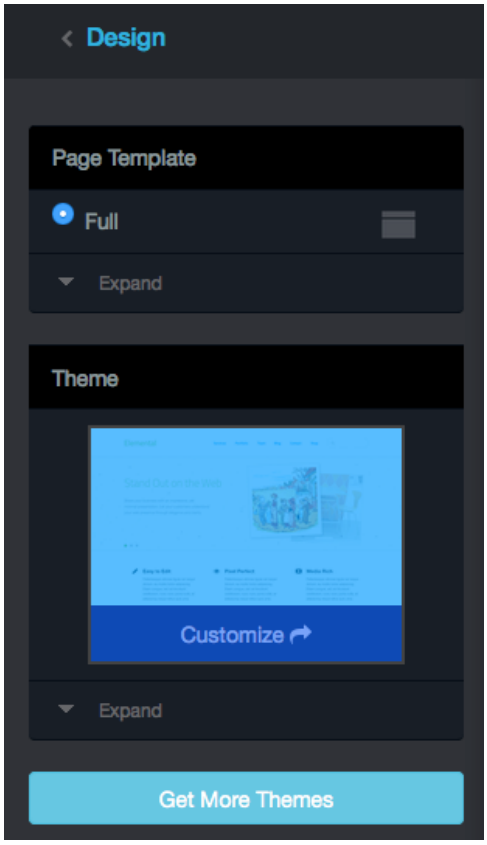



Figure 42: Design submenu

Attributes, caching and permissions are similar menus to those that can be accessed from the dashboard. Another very important submenu is ‘Versions’. All the changes made on a page are stored in the database. If at anytime the owners want to revert the changes to an older version of the same page, they can access the ‘Versions’ submenu and be taken to the menu shown in Figure 43. In this menu, clicking on one of the older versions will show the page as it looked at that specific time. In case that any mistakes are made, this menu allows going back to a better version.

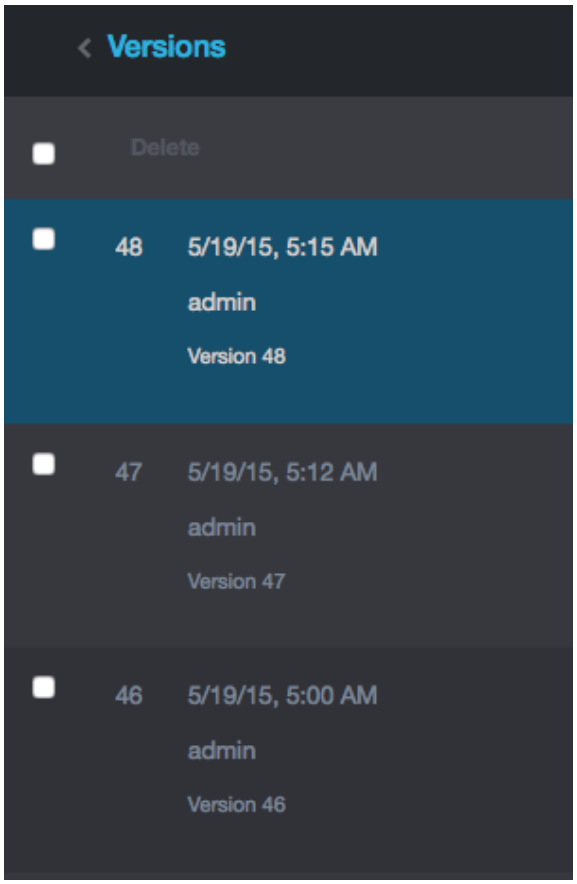



**Figure 43: Versions menu**

## 7.4 Page modifications and additions

When modifying the content of the page by either editing current information or adding new one, the page is shown in ‘edit mode’. The edit mode is a view of the page that shows the HTML elements where content can be added placed. In Figure 44, the green squares are areas where information can be placed to be displayed as desired. When editing information, already existent elements can be dragged into the areas shown in the figure. When adding information, HTML elements are dragged into the designated areas as well.

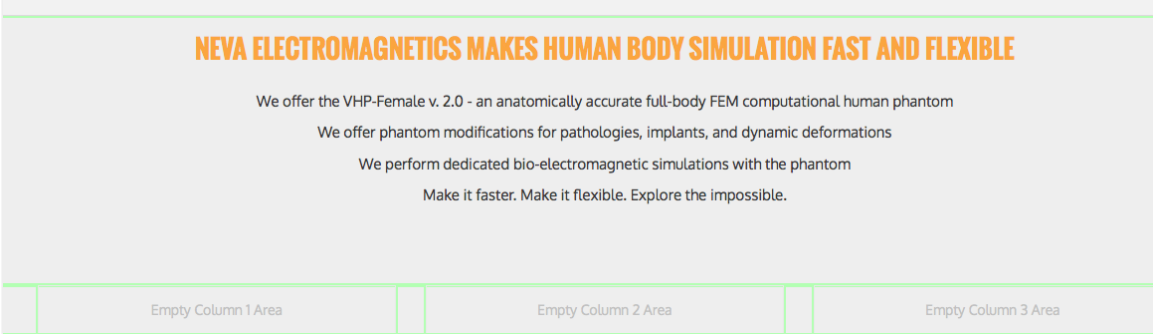



**Figure 44: Edit mode view**

The steps required for modifying content are the following: enter edit mode, click on an already existent elements, select ‘Edit Block’, change the information as desired, and finally publish the changes with a meaningful message that will be shown in the versions menu presented before. In order to enter edit mode and then to publish the changes, click on the leftmost elements in the Concrete5 menu (a pencil). In order to move blocks in different places, in edit mode, drag the block from

its top right corner. Its right top corner contains an easily identifiable sign when the block is hovered with the mouse.

In order to add information, click on the plus sign on the Concrete5 menu. The view of the adding menu shown after clicking on the plus sign is shown in Figure 45. From here, choose from the left menu the HTML element that is desired to be added and drag it to one of the areas shown with green contour. Then just add the information desired and publish the information with a meaningful message for the versions tracker. To be mentioned that elements may look slightly different if placed in different areas that are wider than others.

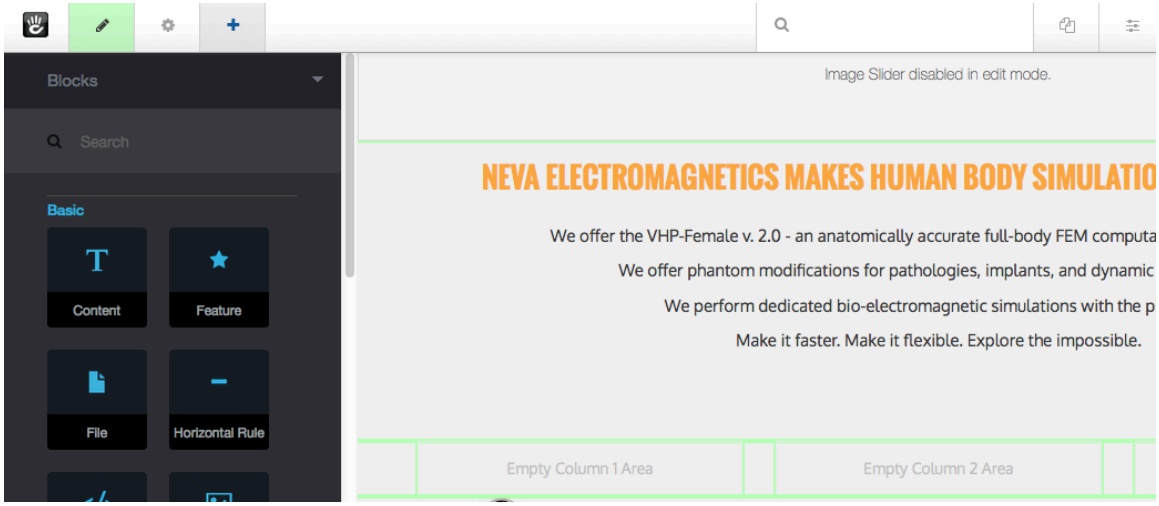



**Figure 45: Adding block interface**

## 8. Conclusion

After multiple iterations and close collaboration with the owners, this project meets all the requirements stated in the beginning. NEVA is in possession of a new website designed for company's current interests and built on contemporary technology. Based on their feedback, the company is pleased with the current design and with the flexibility of the tools used. As soon as Google Analytics and the SEO information are ported from the current website to the one developed in this project, the new website is ready to run.

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# APPENDIX A: Useful information for the owners of NEVA

The webserver's operating system is Ubuntu. In order to log into the servers, you need to use the SSH protocol using the private key.

Enabling ports that allow more than HTTP and SSH traffic on the webserver can be done from the interface provided by Amazon Web Services (AWS).

Rebooting the webserver can also be done from the interface provided by AWS. A reboot will be needed when making deeper changes related to the template. The changes that require rebooting the machine are mentioned in the report.

All the content that can be modified is stored and published from a database and then rendered into HTML format. If sometimes the content is not rendered the way it is desired to, you can always append HTML elements to the content to customize the rendering. For example, if the content does not allow you to show a new line, you can simply append '<br>' to the content in the place where you want a new line because that will be translated by HTML into a new line. This specific modification was used when printing the information shown in 'Team' menu.

For security reasons, when launching the website, make sure to have a secure password for editing because someone with editing permissions could exploit security flaws. Also, it is very important to keep webserver's key private. As soon as someone can enter the webserver, there is no limit to what he can do.