

George Washington University

# Prism E-commerce Report

Ranveer Uppal

CSCI 6548

Hurriyet Ok

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# Layout of the website

The Prism website contains the four necessary pages of an e-commerce site: the home page, products page, shopping cart, and contact page. These can all be easily navigated by selecting the menu items in the header as shown in image 1.

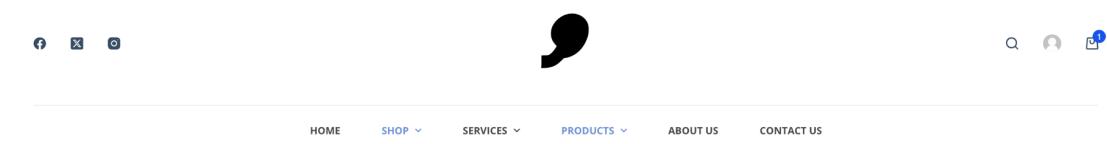


Image 1. The navigation bar (the header).

**The Home page:** The home page immediately states our slogan and, right under it, a very brief and aesthetically pleasing overview of our services and products. We have user reviews below to ensure the current customer has a reference point for our ability to deliver high-quality products and services.

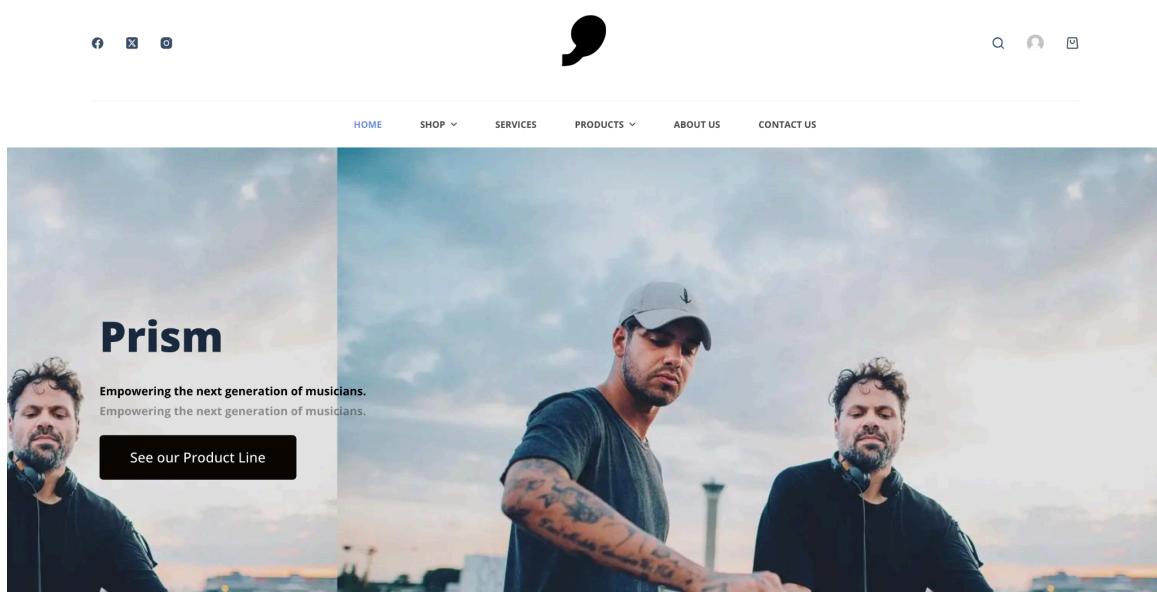


Image 2. The Home page section 1.

## Our Products

Customized solutions for your needs.

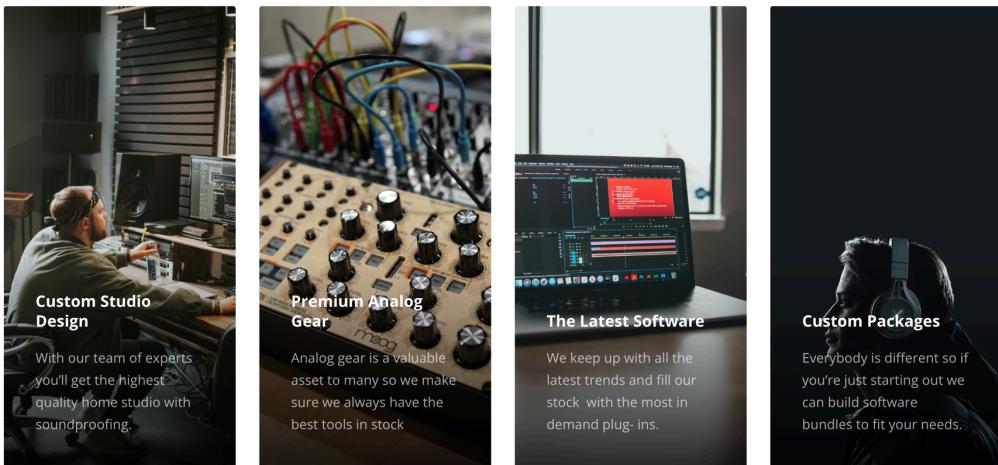


Image 3. Home page section 2.

The products/service page (I have attached our page for our custom studio design as an example):

The screenshot shows a web page for "Studio Design". The main header is "Studio Design". Below it, there is a large image of two people in a studio setting. To the left of the image, there is a caption: "SHOWING THE SINGLE RESULT". To the right, there is a dropdown menu labeled "Default sorting". Below the image, there is a section titled "Custom Studio Design" with a "Read more" button.

Showing the single result

Studio Design

Custom Studio Design

Call for Price

STUDIO DESIGN

[Read more](#)

Image 4. Our page for our studio design services.

## Shopping Cart:

The screenshot shows a shopping cart page with the following details:

Product	Quantity	Subtotal
Moog Grandmother Semi-Modular Analog Synthesizer and Step Sequencer \$799.00	1	\$799.00

Below the table are buttons for "Coupon code" and "Apply coupon", and a "Update cart" button.

To the right, under "Cart totals", it shows:

Subtotal	\$799.00
Shipping	Free shipping
Shipping to DC.	Change address
Total	\$799.00

At the bottom are two buttons: "Proceed to checkout" and "Buy with WOO PAY".

Image 5. Our shopping cart page

## Contact page:

The screenshot shows a contact page with the following sections:

- Contact Us** (Section header)
- Physical Address**: 67 N Glebe Rd, Arlington, VA 22203
- Work Hours**: Monday to Friday: 7am - 7pm; Weekend: 10am - 5pm
- Email Address**: info@prism.com, contact@prism.com
- Phone Numbers**: 1-555-123-4567, 1-800-123-4567
- We'd love To Hear From You!** (Section header)
- Form fields for First & Last Name, Email Address, Subject, and Comment or Message.
- A "Send Message" button.
- A Google Map showing the location of 67 N Glebe Rd in Arlington, VA.

Image 6. Our contact page

As you can see, the navigation bar in the header is the key component of the layout of our e-commerce platform, as it seamlessly guides you to these four essential elements.

## Plugins

**Woocommerce:** Woocommerce was used to set up the payment gateway for the customer when they complete their shopping. Woocommerce was an essential part of this site's development as it allowed the site to become a dynamic and functioning e-commerce platform.

**Blocksy:** The Blocksy plugin enhanced the WordPress editing experience with advanced customization options, including layout, typography, and styling tools, enabling me to create an e-commerce platform that encapsulates all the essential factors of e-commerce design, such as Functionality and Ease of Use.

**Wp 2fa:** The Wp 2fa plugin increased security for the e-commerce website by implementing a two-factor authentication through an authenticator app when a user logs into that platform.

**Change WP-Admin login:** It is essential to change the directory of the admin login page so it is not simply /login. By allowing for the customization of the directory name, the plug-in added another layer of security for the e-commerce site.

**Call for Price for WooCommerce:** Since we also offer services, the price can be negotiable depending on the magnitude of the task at hand; this plug-in gave the customer a “call for price” option, which is more appropriate for the service we are offering.

## Mobile-friendliness

With more and more people using their smartphones, it was essential to adapt our platform to be used on mobile devices.

As you can see in the images below, the interface is flawless and very simple to use. The customer can see the product line and quickly purchase it using Apple Pay (the device used was an iPhone).

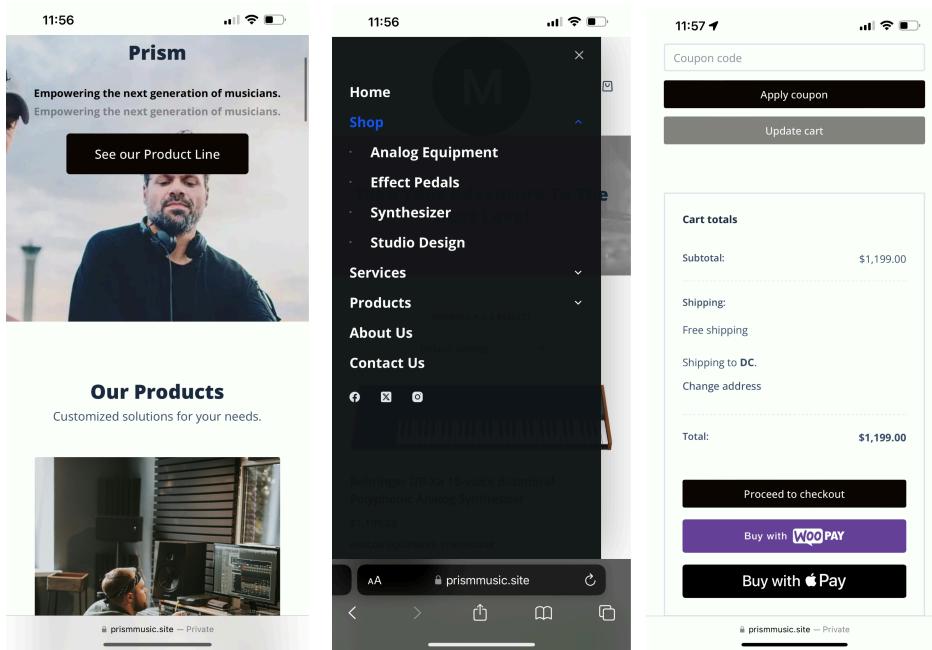


Image 7. Mobile version of our e-commerce website

## Product/service categories

**Analog Hardware (synthesizers, analog effect pedals, etc.):** Our Analog Hardware category offers a range of classic synthesizers and analog effect pedals, as one of our selling points was finding the vintage equipment with the richest and warmest tones.

**Software (DAW - Plugins):** Our Software category was designed to feature state-of-the-art digital audio workstation (DAW) software and plugins, in order to provide our customers with the most ground-breaking and forward-thinking tools.

**Services (custom studio design):** In our Services category, we specialize in custom studio design, offering tailored solutions to musicians and recording professionals seeking personalized studio spaces optimized for their unique needs and preferences.

## Customer business flow

The customer business flow is a straightforward and intuitive process.

1. For example, the customer will choose a product from our analog hardware or software line and select *add to cart*, as shown below.



SHOWING ALL 5 RESULTS



Behringer UB-Xa 16-voice Bi-timbral Polyphonic Analog Synthesizer

\$1,199.00

ANALOG EQUIPMENT



Moog Grandmother Semi-Modular Analog Synthesizer and Step Sequencer

\$799.00 \$999.00

ANALOG EQUIPMENT



MXR M169 Carbon Copy Analog Delay Pedal

\$149.00

ANALOG EQUIPMENT, EFFECT PEDALS



Pittsburgh Modular Taiga Semi-modular Paraphonic Synthesizer

\$799.00

ANALOG EQUIPMENT

Default sorting ▾



Warm Audio WA-2A Tube Opto Compressor

\$799.00 \$549.00

ANALOG EQUIPMENT, EFFECT PEDALS

Add to cart

Add to cart

Add to cart

Add to cart

### Image 8. Shopping page for Analog Equipment

2. The customer can then go directly to their cart and checkout. This will lead them to the following page for their shipping information and payment details.

<b>Contact information</b>													
Email address *													
<input type="text"/>													
<b>Billing details</b>													
First name *	Last name *												
<input type="text"/>	<input type="text"/>												
Company name (optional)													
<input type="text"/>													
Country / Region *													
<input type="text"/> United States (US) ▾													
<b>Street address *</b>													
<input type="text"/> House number and street name													
<input type="text"/> Apartment, suite, unit, etc. (optional)													
Town / City *													
<input type="text"/>													
State *													
<input type="text"/> District Of Columbia													
ZIP Code *													
<input type="text"/>													
Phone *													
<input type="text"/>													
<b>Your order</b> <table border="1"> <thead> <tr> <th>Product</th> <th>Subtotal</th> </tr> </thead> <tbody> <tr> <td>Moog Grandmother Semi-Modular Analog Synthesizer and Step Sequencer x 1</td> <td>\$799.00</td> </tr> <tr> <td><b>Subtotal</b></td> <td><b>\$799.00</b></td> </tr> <tr> <td colspan="2"><b>Shipping</b></td> </tr> <tr> <td colspan="2">Free shipping</td> </tr> <tr> <td><b>Total</b></td> <td><b>\$799.00</b></td> </tr> </tbody> </table>		Product	Subtotal	Moog Grandmother Semi-Modular Analog Synthesizer and Step Sequencer x 1	\$799.00	<b>Subtotal</b>	<b>\$799.00</b>	<b>Shipping</b>		Free shipping		<b>Total</b>	<b>\$799.00</b>
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Free shipping													
<b>Total</b>	<b>\$799.00</b>												
<input checked="" type="radio"/> Credit card / debit card 													
Card number <input type="text"/> 1234 1234 1234 1234 													
Expiration <input type="text"/> MM / YY CVC <input type="text"/> CVC 													
<input type="checkbox"/> Save my information for a faster checkout 													
<input type="checkbox"/> I would like to receive exclusive emails with discounts and product information													

3. The customer will also be prompted to sign up to place the order.

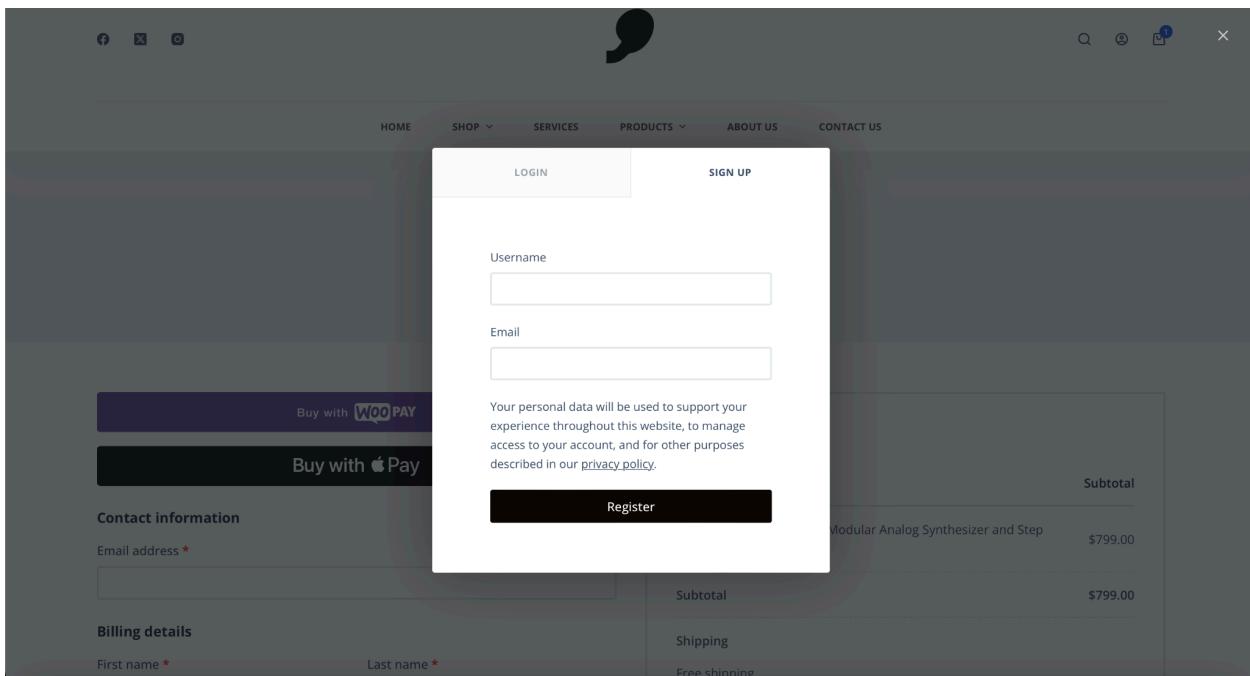


Image 10. Sign-up pop-up page

# Meeting the important factors of an e-site design

**Functionality:** Our website not only loads exceptionally quickly, but our home page directs you to where you need to go next to start browsing, and it also has a quick and concise summary of all our product offerings.

**Informational:** Simplicity was vital to achieving this; since customers are more likely to skim what is on the home page, I made sure to be as informative for each section within a single sentence. Unless the customer goes to the About page to learn more about our e-commerce business, everything else is conveyed simply and concisely. Our products also have a succinct description of why they are important and how they work.

**Ease of Use:** Our website contains undo buttons, the option to reverse your choices, and a clear-cut path from the product page to the shopping cart. The user will know at all times how many items they have in the cart and how they can go back to a specific section on our platform.

**Redundant Navigation:** We have included multiple navigation buttons for the same products/pages. For example, our *shop* and *products* menu items both contain all of our products and services, but one is more specific than the other creating an effective redundancy.

**Ease of Purchase:** Although the purchase method is straightforward, I have also included Google Pay, which allows for a single-click purchase rather than entering all the information on the payment card.

**Multi-Browser functionality:** Our e-commerce website works on all web browsers that can access HTML web pages.

**Simple graphics:** The reader can clearly see the lack of moving graphics on our website as they can be very distracting; we alternatively chose to stick with high-quality images that convey our services and mission effectively.

**Legible text:** We made sure that all text was legible on the graphics by using contrasting colors, as shown in image 3.

## Site Security

For site security, the first thing was to block all traffic unrelated to the GWU servers. This was done by creating a security group in the EC2 instance that only allowed traffic from GWU. Secondly, we needed to enable HTTPS to ensure sensitive information was being encrypted; this was done by obtaining an SSL certificate from the application known as Certbot. Thirdly, as an administrator, it was essential to set up multifactor authentication to add another layer of authentication to gain access to the admin account. This multi-factor authentication extends to all customers who sign up to our website either before or after they make their first purchase. Finally, through the plug-in known as Change WP-Admin login, the wp-admin directory was replaced with a more secure name, making it more difficult for an adversary to gain access to the administrator account.

# Conclusion

This entire project was a great learning experience on not only how e-commerce security is implemented but also why it must be implemented. Having no experience in web development prior to this project, I learned a great deal about setting up a clean build on the backend to make sure WordPress runs as smoothly as possible, how to allocate resources on AWS depending on the requirements of our e-commerce platform and understanding the functionality of the AWS ec2 instance.

## Suggestions for further improvements

The e-commerce platform could be enhanced by adding videos and actual step-by-step videos on how we do our home design for studios and what precisely the customer can expect. As of now, it is more vague and could cause the customer to lack confidence in our ability to deliver. From a security perspective, additional measures or best practices could still be implemented, such as regular security audits, intrusion detection systems, and training for any potential employees on security protocols.

# Addendum

**Imagine the e-commerce website you built is on the public internet. What are some of the signs that your site has been compromised? Discuss the major types of attacks you could expect to experience and the resulting damage to your site.**

There are several signs that our platform could be compromised. For example, if we are receiving numerous failed login attempts and unusual traffic, it could likely indicate that an attacker is conducting a brute-force attack through some sort of automated script or bot that is repeatedly trying different username and password combinations until it finds the correct credentials. Abnormal server usage on the EC2 instance on AWS indicates that attackers are targeting specific areas of the website, possibly trying to exploit vulnerabilities or access sensitive information. Another sign is through customer complaints; if we are receiving complaints of fraudulent charges on customer accounts, this could indicate that there has been some sort of data breach or a phishing attack is taking place on our customer base.

The first major type of attack is an SQL injection, where attackers can inject malicious SQL queries onto my backend through a possible vulnerability that they find on the platform. This will give the attackers access to our database, where we store sensitive customer information. This will diminish the confidentiality aspect of our security and cause us to lose customer support, and damage our public reputation. We can also face regulatory penalties for the failure to safeguard consumer data. The second major type of attack is a DDoS (Distributed Denial of Service) attack, where an attacker overwhelms our servers by directing extremely large amounts of traffic. This attack will cause our site to lose accessibility, and while the site is down, this will lead to financial loss as the opportunity cost of the time the website is down can be quite high, depending on how long the servers take to get back up and running again. If the DDoS attack damages our platform and customers lose accessibility, this will also decrease consumer confidence and harm brand value. Finally, as mentioned before a common and significant threat could be a mass phishing attack, where deceptive emails, messages, or websites are created to trick our customers and users into revealing their sensitive information, such as login credentials or financial data. Like all the other attacks mentioned previously, our platform can cause significant financial loss and harm our public image.