

1. The Problem

- Factories were forced to close when the pandemic first struck in 2020, however, the demand for laptops, game consoles, GPUs, and mobile phones has only increased as people were forced into lockdown.
- A global shortage of silicon only worsen the ability for companies to keep up with demands.
- This lead to the practice of scalping to grow even larger where items where sold twice to three times MSRP.

	MSRP	eBay Average Price May	eBay Average Price June	eBay Average Price July	Current Price Inflation	Price Increase May to June
GeForce RTX 3090	\$1,500	\$3,628	\$2,962	\$2,599	73%	-12%
GeForce RTX 3080 Ti	\$1,200		\$2,187	\$1,905	59%	-13%
GeForce RTX 3080	\$700	\$2,601	\$1,948	\$1,623	132%	-17%
GeForce RTX 3070 Ti	\$600		\$1,323	\$1,085	81%	-18%
GeForce RTX 3070	\$500	\$1,660	\$1,261	\$1,075	115%	-15%
GeForce RTX 3060 Ti	\$400	\$1,617	\$1,255	\$1,012	153%	-19%
GeForce RTX 3060	\$330	\$977	\$830	\$723	119%	-13%
Radeon 6900 XT	\$1,000	\$1,972	\$1,932	\$1,460	46%	-24%
Radeon 6800 XT	\$650	\$1,690	\$1,450	\$1,282	97%	-12%
Radeon 6800	\$580	\$1,518	\$1,210	\$1,087	87%	-10%
Radeon 6700 XT	\$480	\$1,088	\$907	\$733	53%	-19%
			Average	92%	-16%	

2. Target

It is planned to be achieved by the end of the year or early next year to create a web app and browser extension that will scour the internet for the stock availability of an item the user wants to purchase, compare prices and, with permission of the user, add the item to the website’s cart and buy the item as quickly as possible. If the user does not desire the app to purchase the item for them, it will add the product into the website’s cart to keep the item in reserve. Once it has the item, it will notify the user that the item has been added to the cart with a link that takes the user directly to the checkout so the user may confirm the purchase. This whole process will be automated so the user does not have to spend hours at a time waiting for restocks or new releases of an item.

3. Causes

- According to *MarketWatch*, the reason for the silicon shortage are due to 3 main factors: the COVID-19 pandemic, limited manufacturing, and the U.S.-China Trade War.
- In addition, the increase of demand for these electronics has caused their stocks to be reduced to nothing due to scalpers buying the items the moment they are released both online and in stores, where they then resell those items at a higher price. This is prevalent mainly in PC parts, laptops and gaming consoles.
- Scalpers are using bots to instantly buy high demand products and resell them at inflated prices. Going so far at reselling from 2 to 3 times the original price.

Dollar Volume Growth Electronic Sales and Computer Software (2015 – present)



(Source: Bloomberg Finance, LP)

4. Countermeasures

- Create a ticket system for those who pre-order the product or when the product is out of stock that is IP locked and will expire after some time so clients get the chance to buy the product and to prevent scalpers from buying more than one of the same product even if they try and use different accounts or devices
- Prevent others from stalling the space from other consumers who are willing and capable for paying for the product.
- Have a reminder to warn users that the item they are about to buy is overpriced and show them cheaper alternatives from that same website or other trusted websites.
- Let users set a budget so the items found won’t go beyond that budget including shipping costs.
- Shows a history of the product’s change in prices.

5. Evaluate

- This project’s success will be determined by factors such as continued growth of the application as more users join the platform who use online retailers to help us accurately compare prices and those online retailers who are willing to buy into the IP lock system to ensure honest purchases.
- However the project will fail if the number of users plummet or stops getting support from online retailers to use the IP lock system.
- Since the main issue is to take time to find and search for the right price and wait for restocks, it is safe to say that the root cause is eliminated.

6. Act to Standarize

- The success of the project will be maintained by increased promotion and development of the app’s UI and ease of use. This will make it more accessible for everyone: from enthusiasts to the average person.
- There will also be a section for feedback to help improve on the app and a donation section for additional funding.
- By the end of this project, the team will have acquired new and improved skills in programming languages, web apps, browser extension development, and framework usage skills. They will also have invaluable experience in designing, and development of algorithms as well as launching a “product” to the public and private sector.
- The skills and experience gained from this will without a doubt be applied for future advanced course projects, but also be valuable for development of future personal and professional projects.