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# Chapter 1: Space Invaders Overview

*“If I have seen further it is by standing on the shoulders of giants.”*

* + *Isaac Newton*

In order to lead us on this journey through computer architecture, I will be using one peculiarly accurate analogy: Ford’s assembly line. So, what was so revolutionary about this simple idea?

## Section 1.1: Space Invaders History

Prior to the Industrial Revolution, the majority of manufacturing was performed in people’s homes and generally by hand. It was generally the duty of a small group of craftsmen to create a product. For example, in order to create a wooden dresser, a person might first save up to purchase some lumber. Then, they would spend the time carving and sawing the proper shape and pieces. Well, they would first need to save up and buy a saw and knives. They would also need to spend the time to study and learn how to shape it properly. They may need to practice first on some scrap wood. Eventually, they get the drawers assembled, the shelves aligned, and the edges sanded for a perfect fit. They meticulously stain it and protect it with varnish. It’s a finely-crafted masterpiece!

Even today, there is a very large market for hand-crafted, luxury goods. Yet, as a citizen of the 21st century, doesn’t that process seem complicated? Doesn’t it intuitively seem like it would waste resources for one individual to have to get all of the supplies and training in order to produce a single item? It sounds great for a hobby, but terribly slow for mass production.

## Section 1.2: Game Play

Henry Ford’s plant was not the first to implement an assembly process.[[1]](#endnote-1) It required the innovations of the giants that came before him. For example, most of Ford’s ideas depended upon the earlier development of machine tools like a metal milling machine and lathes. These made interchangeable parts a reality. Ford also did not develop the process entirely on his own.

## Section 1.3: Game Details and Specifications

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# References

1. [↑](#endnote-ref-1)