

Chapter 6

Smart Homes and Offices

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ABSTRACT

Smart Homes and Offices (SHO) are composed of interlinked components with constant data transfer and services targeted at increasing the lifestyle of the people. This chapter describes about the smart components and how SHO are direct implementation of Internet of Things (IOT). The major paradigm in this chapter is appliances supporting smart aspects of SHO, their applications and change in technology in context of smart Homes and Offices. Here we have also discussed the standardization and personalization of gadgets and how it has been increasing our standard of living. Finally, the chapter focuses on privacy preserving mechanisms, its essence over smart cities, strong architecture related to privacy, preserving mechanism, and various approaches available that can retaliate these issues in a smart city environment.

INTRODUCTION

At the turn of this century, the evolution of intuitive and sustainable environments has gained pace, and having smart homes and offices is the first step on this path. You can now own a fully connected house well stocked with sensors to control temperature, moisture, air quality, energy consumption, and even more, and you will be notified about the status of nearly all of the appliance running in your SHO from anywhere in the world with just a Smartphone or any mobile device. But all these are partially smart, they are still managed by us. These appliances don't truly understand and support human behaviour, they are just more comfortable to use. So, the state we are at today is just the beginning of a greater path towards the automation of the world we live in today, a world with great potential for growth, be it in our personal lives, or in our society. Building automation for homes and offices helps with supervising

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and controlling human environments, aiming to help people live a safe, secure and comfortable life. We can live in a world where our impulses and desires are interpreted and understood by machines and carried out to the best degree of their ability. That is what would make the appliances truly intelligent.

Smart homes and office technology, generally alluded as home automation, provides buyers much needed safety, comfort, convenience and energy efficiency by allowing them to control intelligent appliances, often by an app on the phone or some other device connected to the same system.

The basic principle of all the automation remains the same as it has ever been for all the companies at the forefront of the field - providing services for consumers in smart and practical ways. Investing in where you live is always deemed as a shrewd investment, but the question of home automation is not all about only comfort, it's also about elevating humanity while exploring the future of the world. The increasing trend of us burgeoning comfort with technology gives researchers a medium to once again explore these facets of development with a much wider audience at the receiving end. So, in this chapter, we will attempt to understand the purpose of smart homes and offices through the perspective of people on both ends of the spectrum, the creators and the consumers.

Although the primary concerns here is about comfort, but not the only one. Smart homes can be beneficial for people with busy lives. Houses with a whole lot of appliances working together in a synchronous manner make the day to day chores easier for everyone but the parallel nature of these task saves time and can provide us with energy to focus and prioritize our work efficiently. Used correctly, these can provide us with peace of mind, as well as time to pursue more fulfilling endeavours. Similarly, when used in offices, automation can save us a lot of manpower and money, and be very beneficial for small businesses. Buyers nowadays are more open than ever to the concept of smart homes but doubts about technology controlling their lives can cloud their judgment and that is why they needed to be convinced of the benefits these homes can have in their lives. This is one of the other things to be discussed in this chapter, the technological and ethical challenges to be faced in the search for a truly smart home, and precautions and remedies to be taken to minimize these risks.

As there are various interlinked appliances, virtual assistants, and ample amount sensors that one installs in their modern SHO, but does these "smart" devices really are "smart" enough for today's market standards where things are changing at such a fast pace. It's perhaps best then to think of today's smart home and offices (SHO) as a remote area where things are in our control, but our SHO does not stand as a smart entity in itself. If you have to manually control certain things just because it requires assistance from outside world, we cannot say the SHO smart enough then it doesn't matter how much well connected your house is inside. So technologies that can make the whole SHO work as. Smart entity is much needed.

In Recent years have seen great progress in the field of human activity recognition which deals with observing and interpreting the actions of humans to help with the process of monitoring and fulfilling their needs.

The question of why we even need smart Homes and offices should be discussed along with question that are SHo only for luxury or they provide something solid, or they improve something or not. we will see in this chapter how SHO can be beneficial and are better version ordinary housing in every aspect. The **motive** of the chapter is to provide a holistic knowledge of smart homes and offices how IOT and different components of SHO helps an ordinary to transform into a SHO.

Some basic importance smart homes and offices are as follows:

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