

# Report Submission

CON101- Introduction to Computer Science and Engineering

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## 1 Introduction

Be it Loon(parent: Apple Inc.) or Starlink (parent: SpaceX) or other companies like OneWeb(parent: Amazon) and TeleSat(parent: Amazon) has one goal - **“High speed interned access across the globe.”** Loon aims to put thousands of hot-air balloons to beam the internet to mobile or fixed stations on earth. Starlink on the other hand, aims to achieve this by setting up nearly 20,000 satellites.

## 2 Advantages and Disadvantages

### 2.1 Advantages of the project

1. To provide internet through a network of high altitude.
2. Minimise the network problem in remote areas. and in parts of Africa where communication system is not that advanced.
3. Countries that are not able to lay fibre cable benefits greatly.

### 2.2 Disadvantages of the project

1. High initial and maintenance costs. Therefore feasible only to tech giants like Google, Amazon, Facebook etc.
2. Requirement of skill of engineer. Highly skilled research scholars are required for successful operation of such projects.
3. Face more initial challenges. (Administrative, Economic etc.)

### 3 Network problems

The projects of these type being tech-heavy, network oriented and innovative brings in many networking problems that need to be addressed for large scale use. Following are some of the network problems one can predict.

1. Developing an efficient communication system among different balloons/satellites to **avoid collision** among themselves and with other sky/space bodies.
2. **Security of data** becomes even more important as anyone can access the internet services.
3. **Increasing the internet speed.** Currently the speed offered during tests were comparable to 3G which is “slower” as compared to 4G and upcoming 5G.
4. Currently, most of the projects use unlicensed ISM spectrum at very low power to avoid interference. However, this needs to be addressed and should be more structured for high scale usage across the globe.

### 4 Other technical problems

1. There is a space junk problem. In the next few years, **the number of satellites orbiting Earth could reach 46,000** — that’s more than five times the number of objects that were sent to space in the past 60 years. They therefore become a potential threat to other space stations, satellites etc.
2. The satellites may interrupt the observational astronomy since they shine brightly in the night sky.
3. Similarly, google loon would create more “air traffic” for birds and even domestic airlines.

### 5 Conclusion

Internet has become one of the basic needs in day to day life. One part of the world is getting improved in a tremendous speed with the help of internet, while about 2/3 of population is not even able to access it.

Google states that “It is highly experimental technology we have long way to go”. It is an early and inspiring attempt made by the Google to provide connection to rural and remote areas that deserve internet connection.

## 6 References

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