

The Future of Flight

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Although they do not happen often, plane crashes are devastating when they do. If an airliner like the Boeing 737–800, one of the most popular commercial aircrafts in use, were to fail, hundreds of people could die from that one flight alone. The main factors which cause crashes occur from poor maintenance, pilot error, sabotage, mechanical failure, and more. As someone who flies quite often and whose dad is a pilot, I am concerned with the safety of planes, the probability of surviving a crash, and the chances of the plane failing. Many concepts and ideas can be applied to engineering and production of planes in the future, making them less likely to fail or making passengers more likely to survive an accident. According to many accounts, planes are still the safest way to travel; however, that does not mean that there is no risk to it and the fear of flying still exists. In 2018, there were 15 airliner accidents, causing 556 people to lose their lives, and millions of dollars in damage. Moreover, plane crashes are large, fatal occurrences that cost many lives and a lot of money; with new technological advancements being created with each coming day, STEM concepts and ideas that aim toward creating safer flight—whether that is with commercial, military, or personal planes—and new procedures being formed can be applied for the sake of the future of flight.

The first step towards eliminating plane crashes is to alter the procedures and requirements for future flights to make traveling by air safer. In order to do that, we have to

understand why planes crash, then make the alterations. There are many different factors that are involved—pilot error, poor maintenance, system failure, etc. Whatever the causes may be, there are ways to mitigate it. An article from Everglades University, "What Are The Main Causes of Airplane Accidents?", states that "over half of all airplane mishaps are due to human errors," according to a seven year study. In 2007, Flight 574 of Adams Air crashed into the ocean and killed 102 passengers on board. The text states that "there was a problem with the flight's internal reference system" and the plane started to descend. The pilot failed at maneuvering it a certain way, so he lost control over it completely. One way to reduce the chance of pilot error, like this, is to cover more possible crash scenarios with pilots in and out of training. Broad emergency procedures can also be covered that are applicable to many different types of situations. These procedures could also be required for pilots to review every so often. My dad goes through simulators once every nine months for training, but this training could be required more often to include more in-depth practice sessions. Planes are also likely to crash because of poor maintenance. According to the article, "maintenance related issues occur when there is a systematic breakdown or organizational mishap that is caused by factors such as time pressure, inadequate skills, stress or even lack of care and laziness." Chalk's Flight 101 saw this in action. In 2005, the flight crashed off Miami Beach, killing all 20 passengers. This was because there was a crack in the plane's wing that was detected earlier, but was not repaired correctly by the repair crew. These issues with maintenance can be fixed by making stricter requirements for hiring maintenance crew or double checks from multiple people before the plane is cleared to fly. One step towards making planes safer and less likely to fail starts with the procedures and way the planes are treated: all of which can be altered for the future.

While making advancements toward eliminating crashes could help shape the future, there are also ways to make the crashes themselves safer with a higher chance of survival. With new research, improvements toward existing safety procedures and creating new ways to survive serious accidents in the future are possible. Currently, when one gets on a commercial airline they are told the safety procedures which usually involve how to fasten a seatbelt, where the exits are located, and how to use the oxygen masks—all of which are important, but not really helpful when the plane falls from the sky at 39,000 feet. What if there were ways to slow the decent? If a plane fails, what if there were parachutes that can help the plane float to safety? What if the entire cabin would be able to detach? In some cases, parachutes are already a reality. Detachable cabins, however, are still just a concept. Some smaller aircrafts and military planes have parachutes already equipped for them. This is possible since they are more lightweight than the 175,000-pound commercial airliners. According to the article “Will Commercial Airplanes Have Parachutes Someday,” there is one company that sees this possible. Ballistic Recovery Systems started parachute development with small planes by outfitting them in 1998 “with backup parachutes designed to support as much as 4,000 pounds.” The parachutes are activated “simply by pulling a red lever” that releases a capsule with a “large canopy chute.” Inventor and founder of Ballistic Recovery Systems, Boris Popov, believes that applying parachutes to larger, commercial airplanes, such as Boeing and Airbus, may be possible. However, Popov says that other changes must take place in order for the parachutes to be able to work. By his calculations, “every pound of descending weight requires about a square foot of parachute material”—this would mean around 21 large parachutes would be needed for a plane such as a Boeing 747. In order to make the planes lighter so less parachute material would be needed, a new type of

aircraft could be designed. According to the article, “One approach to making this more feasible is to engineer an aircraft that can separate into smaller segments. That way, only the passenger cabin would be braced during a free-fall. Under this scenario, the wings and other components would detach to shed weight quickly,” making the idea of adding parachutes to commercial airplanes more realistic. According to Nidhi Goyal’s article “Aircraft With a ‘Detachable Cabin’ to Save Lives in a Plane Crash,” the concept of detachable cabins has been adapted by many. Goyal explains how it will work: “The pilot would have to push a button that allows the cabin with all the passengers and even cargo to separate from the rest of the plane.” She also explains the concept with the help of parachutes, saying the the cabin “will land safely on the ground or water with the help of attached parachutes, boosters, and rubber tubes.” With more ideas and concepts like these being researched, it is very possible for the ideas of parachutes and detachable cabins to be applied in the future. The future of flight is dependent on the safety of aircrafts and the concepts and ideas that go into improving their security; development of parachutes and detachable parts can play a large part in decreasing fatalities caused by crashes, making planes a safer form of travel.

Plane crashes are devastating, whether accidents or not, that cost a lot of money and many lives—STEM concepts, ideas, and innovations are important towards making future flight for everyone safer. Procedures for take off could be altered, pilot training could include broader emergency scenarios that are applicable for multiple situations, parachutes could be attached to the entire plane, the cabin could detach making it lighter for the parachutes to carry. My family flies often, and it would be comforting to know that there are multiple ways to survive an

accident. These ideas and proposed concepts could be further developed for the sake of safer flying, propelling us into the future of flight.

Works Cited

- Goyal, Nidhi. "Aircraft With a 'Detachable Cabin' to Save Lives in a Plane Crash." *Industry Tap*, www.industrytap.com/aircraft-detachable-cabin-save-lives-plane-crash/40891. Accessed 9 April 2019.
- McCarthy, Niall. "2018 Saw A Sharp Increase In Air Crash Deaths." *Statista*, www.statista.com/chart/12393/2017-was-the-safest-year-in-the-history-of-air-travel/. Accessed 8 April 2019.
- Nguyen, Tuan. "Will Commercial Airplanes Have Parachutes Someday?" *Smithsonian*, 15 Jan. 2014, www.smithsonianmag.com/innovation/will-commercial-airplanes-have-parachutes-someday-180949373/. Accessed 11 April 2019.
- Wise, Jeff. "The Tech That Makes New Airplanes and Runways Safer." *Popular Mechanics*, www.popularmechanics.com/flight/a5013/4338852/. Accessed 10 April 2019.
- "What Are The Main Causes of Airplane Accidents?" *Everglades University*, 9 March 2018, www.evergladesuniversity.edu/major-causes-of-airplane-accidents/. Accessed 12 April 2019.