**Software Engineer – Kendall White**

**This project was inspired by the F-111 Aardvark developed by General Dynamics and college physics.**

This aircraft was created in the 1960’s. The F-111 Aardvark was created for various purposes, including recognizance, strategic bombing, and electronic warfare. This craft tops out at 2,005 MPH or 1742.297 knots (kt) with a max altitude of 60,000 feet.

This aircraft set records at the peak of its time. Though, it did not see a lot of combat missions. The Aardvark has been to Vietnam, the gulf war and Iraq war. The first feature this plane has, is the ability to swing its wings. This helps to change flight profiles from high to low penetration levels. The f-111 Aardvark has been through different militaries such as the United Kingdom and Australia.

The reason behind its name was because if it’s longs nose, like that of the African aardvark animal. This killing machine has more deadly features other than its speed and the swing wings. It also features guided bombs, missiles, and believe it or not… nuclear payloads. Now that’s the bomb diggity!

**Mission statement**

I will be taking an embedded system within the aircraft that many aircrafts are outfitted with, also known as the Air Speed Indicator (A.S.I). The goal of this project is to calculate the speed of a plane.

**What is the ASI?**

An instrument for measuring the forward speed of and aircraft. The ASI uses the aircraft pilot-static-system to compare pilot and static pressure. This determines the forward speed.

**What unit is aircraft speed measured?**

The measurement and indicated is in knots. (nautical miles per hour).

**How does the ASI work?**

Pilot pressure is fed into a barometric capsule located within a sealed container that is fed with static pressure.

**Definitions**

Air speed indicator – the device that measures the speed of an aircraft relative of the surrounding air.

Static Pressure – The pressure of still air.

Ram pressure – the moving air compressed by the aircrafts forward motion.

A diagram of a mechanical system

Description automatically generated

**Formula of calculation**

**TAS = IAS (1 + Altitude \* 0.00002)**

**Variables**

TAS (true air speed)

IAS (indicated air speed)

Altitude

National flight simulator –

<https://www.nationalflightsimulator.com/nfs-true-airspeed-art>

Skybrary -

<https://skybrary.aero/articles/air-speed-indicator#:~:text=An%20air%20speed%20indicator%20(ASI,and%20thus%20determine%20forward%20speed>.

Top Fives

<https://www.youtube.com/watch?v=eqQ_GDF_XGQ>

Vector Pilot Prep <https://www.youtube.com/watch?v=tAGgax4SmkQ>