1. Problem Statement

- The existence of laboratories play a vital role in research, but many are still reliant on **manual data entry** and **outdated processes**, **hindering efficiency and collaboration**

- Conventional laboratory instruments often **lack connectivity** (they don't have output at all) , making data collection and analysis **cumbersome and time-consuming**

2. Solution Overview

- The word "**science**" in Bahasa Indonesia is "**sains**" (literally, there is an "**AI**" in it). sAIns-digital provide **Artificial Intelligence** based solutions, using Computer Vision technology to imitate the human eye's function in seeing the instrument output and automatically send the output data (without having to write by hand on paper or type on a keyboard)

- **sAIns-digital** is a breakthrough solution that enables every laboratory instruments, even conventional ones, to seamlessly transmit data via **Internet of Things** (**IoT**)

- Collaboration between:
  - Microprocessor: Raspberry Pi / Google Coral Dev Board / BeagleBone Black
  - Microcontroller: ESP8266 / ESP32 / RP2040
  - Sensors / Actuators: Temperature, Humidity, Pressure, Accelerometer, Gyro, Motors, LEDs, etc.
  - Software: Linux OS, C/C++, Bash, Python

3. Value Proposition

- **sAIns-digital** will revolutionizes laboratory operations, improving data accuracy, and streamlining research processes

- Benefits:
  - Will reduce data entry errors
  - Accelerated research with real-time data access
  - Enhanced collaboration through shared data repositories

4. Unique and Feasible

- Implementation:
  - The **sAIns-digital** device easily attach to lab instruments
  - Seamless integration with cloud platforms for data storage and analysis

- Differentiator:
  - **sAIns-digital** is the first universal IoT solution for laboratories, bridging the gap between conventional and modern instrumentation
  - Cost-effective and user-friendly, **sAIns-digital** sets a new industry standard

- Unique Aspects:
  - Universal compatibility with existing lab equipment
  - Real-time data transfer to cloud-based platforms
  - Integration with data analytics tools for instant insights

5. Impact and Sustainability

- Impact:
  - Significant reduction in paper usage and waste
  - Accelerated research leads to faster discoveries
  - Enhanced data-driven decision-making in laboratory operations

- Sustainability:
  - Reduced environmental impact through paperless data collection
  - Ongoing data analysis leads to resource-efficient processes

6. Meet sAIns-digital Team ...

Danny Ismarianto Ruhiyat

AIoT Engineer

- Meet **Danny Ismarianto Ruhiyat** a.k.a **danito** the solo fighter in **sAI**ns-digital team as an **AIoT Engineer**

  - More than 3 years experience in **Vision Computing**
  - More than 7 years experience in **Internet of Things**
  - Has won various **national and international hackathons**
  - Currently working as **IoT Tech Lead** at one of the largest logistics companies in Indonesia
  - Has studied **Chemistry** and **IT** majors (quite familiar with the science laboratory and its instruments)

  - https://www.linkedin.com/in/dannydanito/
  - https://www.instagram.com/danito_net/
  - https://sAIns.digital/