This project is a collaboration with Bnai Zion Medical Center aimed at tackling a common and critical issue in hospital and medical center laboratories: the mismanagement of patient samples.

In the current system, when patient samples are collected, they are labeled with barcode stickers containing important patient information, such as their name and ID number. Upon arrival at the laboratory, staff compare these samples against the patient's details in the computer system. Typically, each sample is assigned a label that includes the patient’s name/ID, along with a unique barcode linked to the patient.

However, issues arise when multiple samples from the same or different patients arrive simultaneously. Manual handling and labeling can lead to confusion, resulting in the risk of sample mix-ups. To prevent such errors, it is essential to ensure that at every stage, the samples are correctly identified, ensuring they belong to the right patient and are intended for the appropriate laboratory procedures.

To address these challenges, we have designed a low-cost, reliable barcode checker device. This device ensures that every sample labeled with a patient’s name/ID is matched with the correct barcode, referred to as the "Golden Barcode," to avoid potential misidentification or errors throughout the entire process.