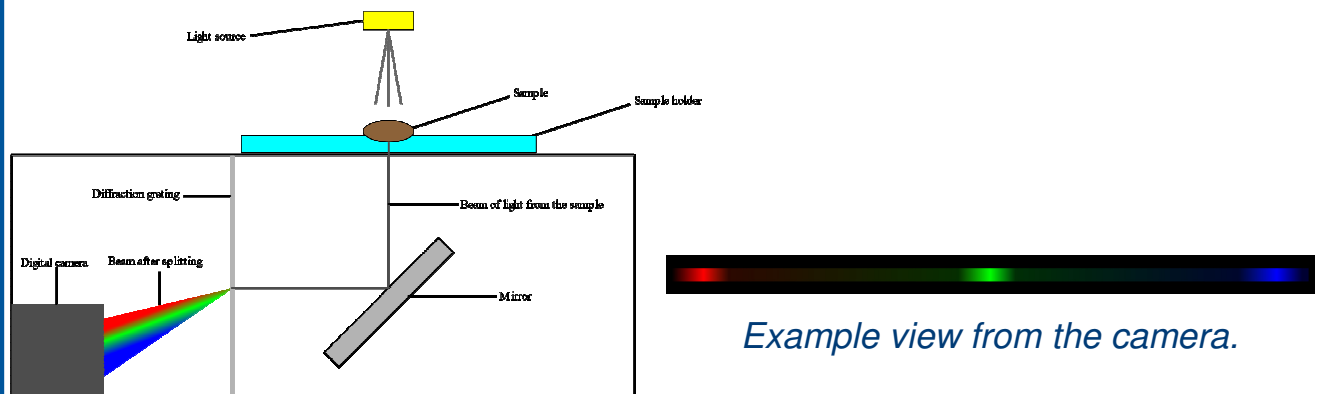


# OPEN SOURCE LOW COST SPECTROPHOTOMETER PROTOTYPE

## What is a spectrophotometer?

A spectrophotometer is a device that is used in many laboratories to analyze light sources, and light absorbing materials. It uses some optical device, in this case a diffraction grating to split a beam of light into its constituent wavelengths. These split waves can be used to analyze the sample.



*Example schematic of a spectrophotometer.*

## Objectives

The objective of the conducted research was to create a low cost spectrophotometer (budget < \$100).

## Materials used

In order to achieve the budget constraints the project revolves around 3d printed parts and a few off the shelf components, mostly the electronics. The brain of the device is a Raspberry Pi Zero W which is a single board computer and as the digital camera the OV5647 module is used.

## Results

The result of the conducted research is a fully open source (MIT license) spectrophotometer. Due to the current epidemiological conditions I wasn't able to acquire any samples that could be used to scientifically quantify the results.