# POC DESIGN DOCUMENT

For a smart cup on a bottle.

FEBRUARY 22, 2022

TECHY8

# Introduction

This document specifies key conceptual design for a smart pill cup, proof of concept design. The smart cup will be able to provide features such as: keeping track of the cup opening/closing, fingerprint reader, dosage trackage, content counter of the pills inside the bottle to which it is attached, and bottle location signaling; all provided to a website or a mobile application.

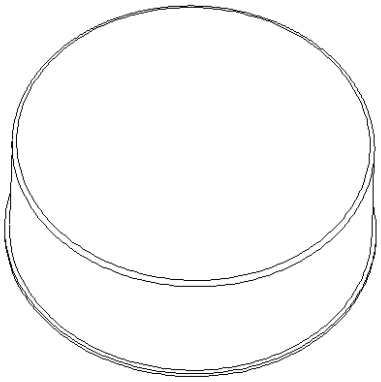

*Figure 1 : POC cup*

## Tracking Cap Opening

A trigger switch placed on the cup will be able to detect when the bottles' cup is opened or closed. The cup can only be opened if the fingerprint has successfully identified the owner or patient to whom the bottle belongs to.

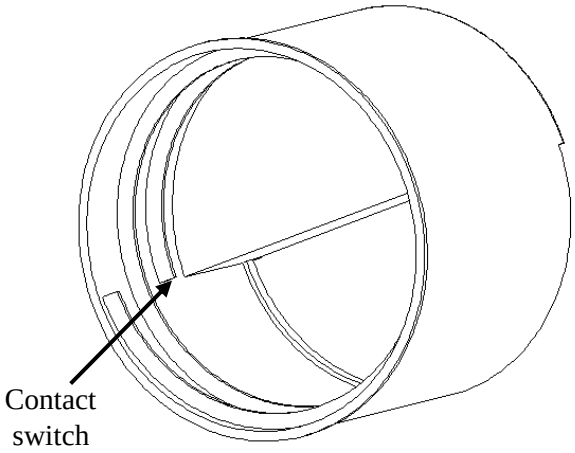


*Figure 2 : Cup thread*

**Finger print recognition**

The finger print sensor, placed upon the cup will be able to identify the cap owner and that only, after the biometrical data has been retrieved and assured to be genuine, then a signal will be released by an imbedded microcontroller that will enable the locking mechanism of the bottle to be opened.

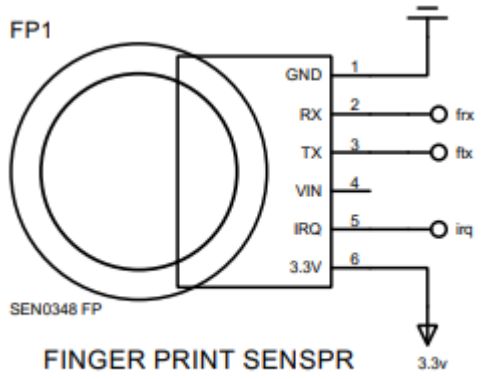


*Figure 3 Finger print sensor*

Programmable biometrics lock on the cap will prevent anyone other than the User to open the bottle.

**Track Dosage**

Depending of the dosage set by the physician, a reminder will be provided from the handled phone so as to know exactly when to take the medicine, the last time it was taken and the next time it is supposed to.

**Content Counter**

The counter will enable the User to know how much content has remained in the bottle and how many have been taken out.

A pressure sensor detects the amount of pressure applied to it, and the processing is done using the embedded microcontroller and that data is then shared with the phone so as to notify the user how many pills have remained in the bottle.

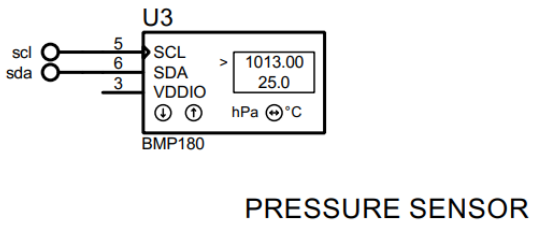


*Figure 4 force/ pressure/ weight sensor*

### Bottle Locating Signal Bottle

Locating signal to enable the User to locate their pills bottle should they forget or misplaced it. With the bottle allocating Single, a buzzer or a micro-speaker could be powered on and output a signal which will be triggered from the handled phone.

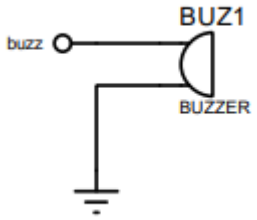


*Figure 5 Buzzer / speaker for bottle signaling the location*

### Sync to the Mobile App

via WIFI module through the microcontroller, all the data described above will be sent to the cold, and then from there, the data will be retrieved by the mobile phone or a personal computer.

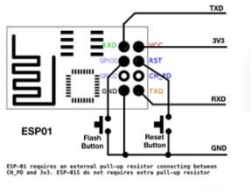


*Figure 6 WIFI module to send data in the server/cloud*

# Schematic diagram

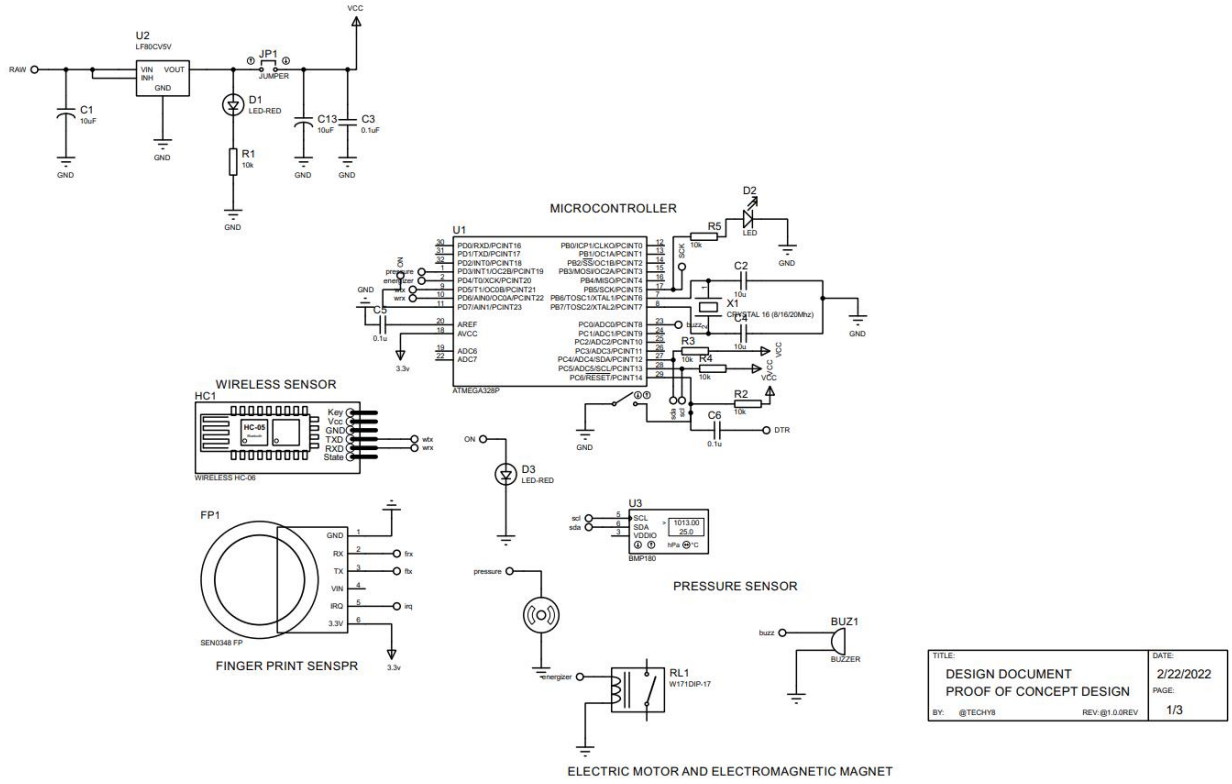


*Figure 7 Schematic diagram*