



# Circuit Design

(WS2020/21)

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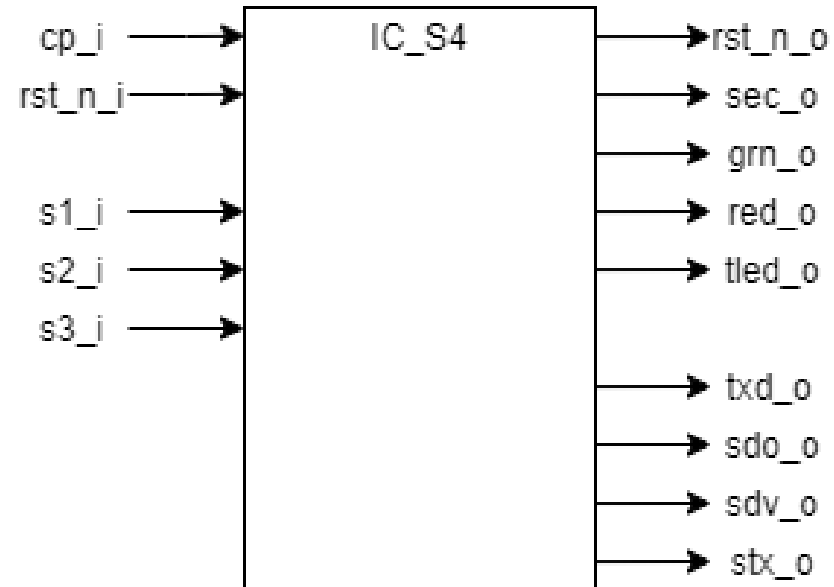
# Circuit Design Application

Matching Covid-19 Restriction

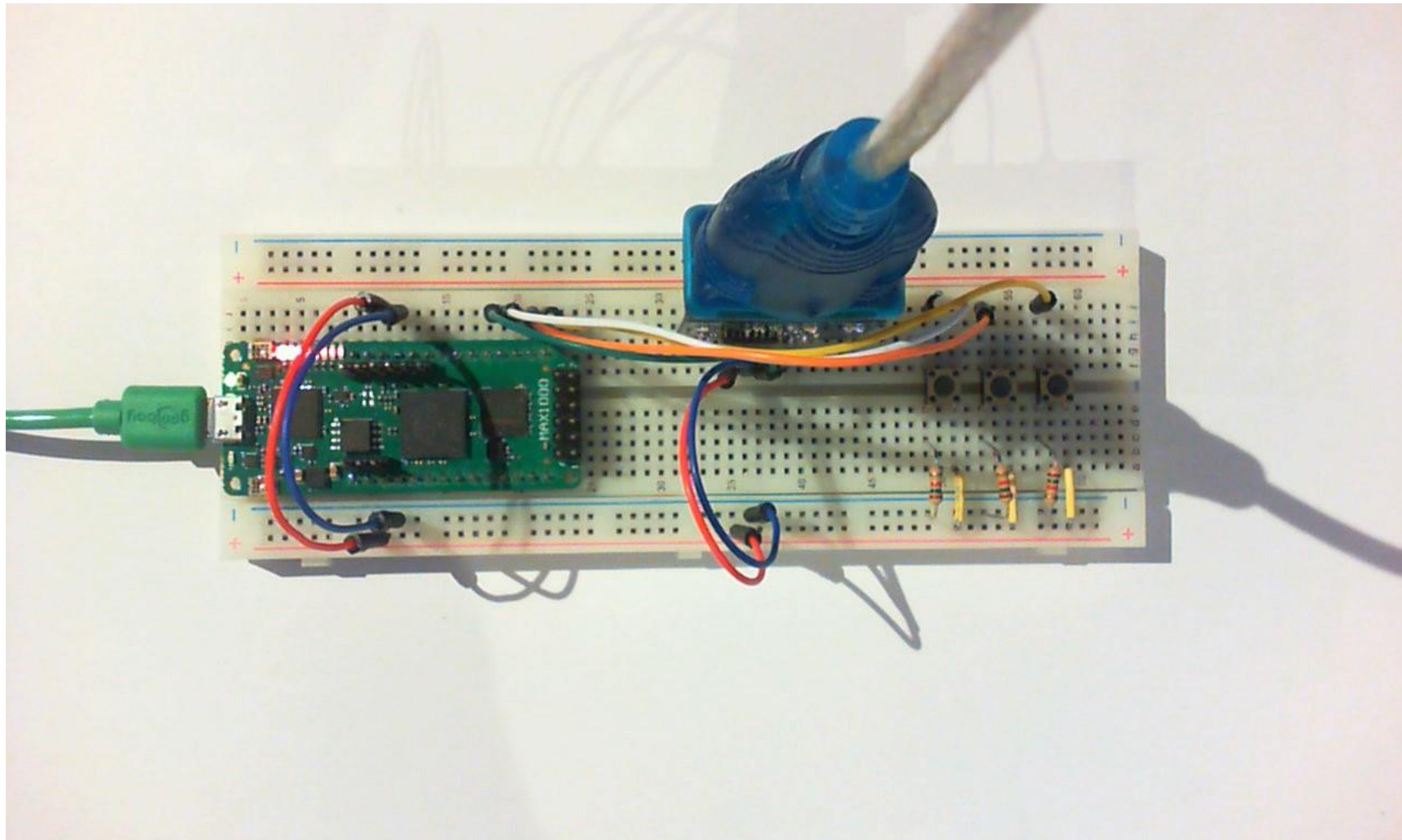
- ☐ Monitoring
- ☐ Visualizing
- ☐ Security

# Circuit Design

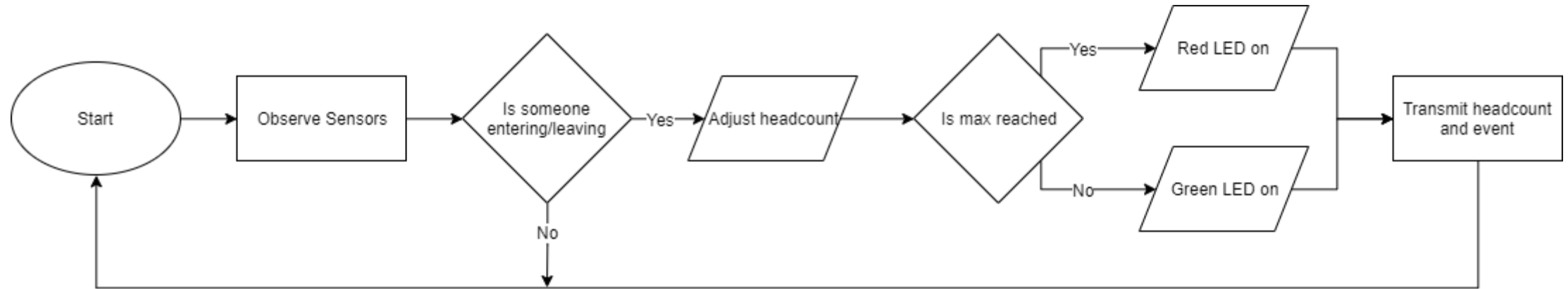
## Block Diagram



# Circuit Design Board Setup

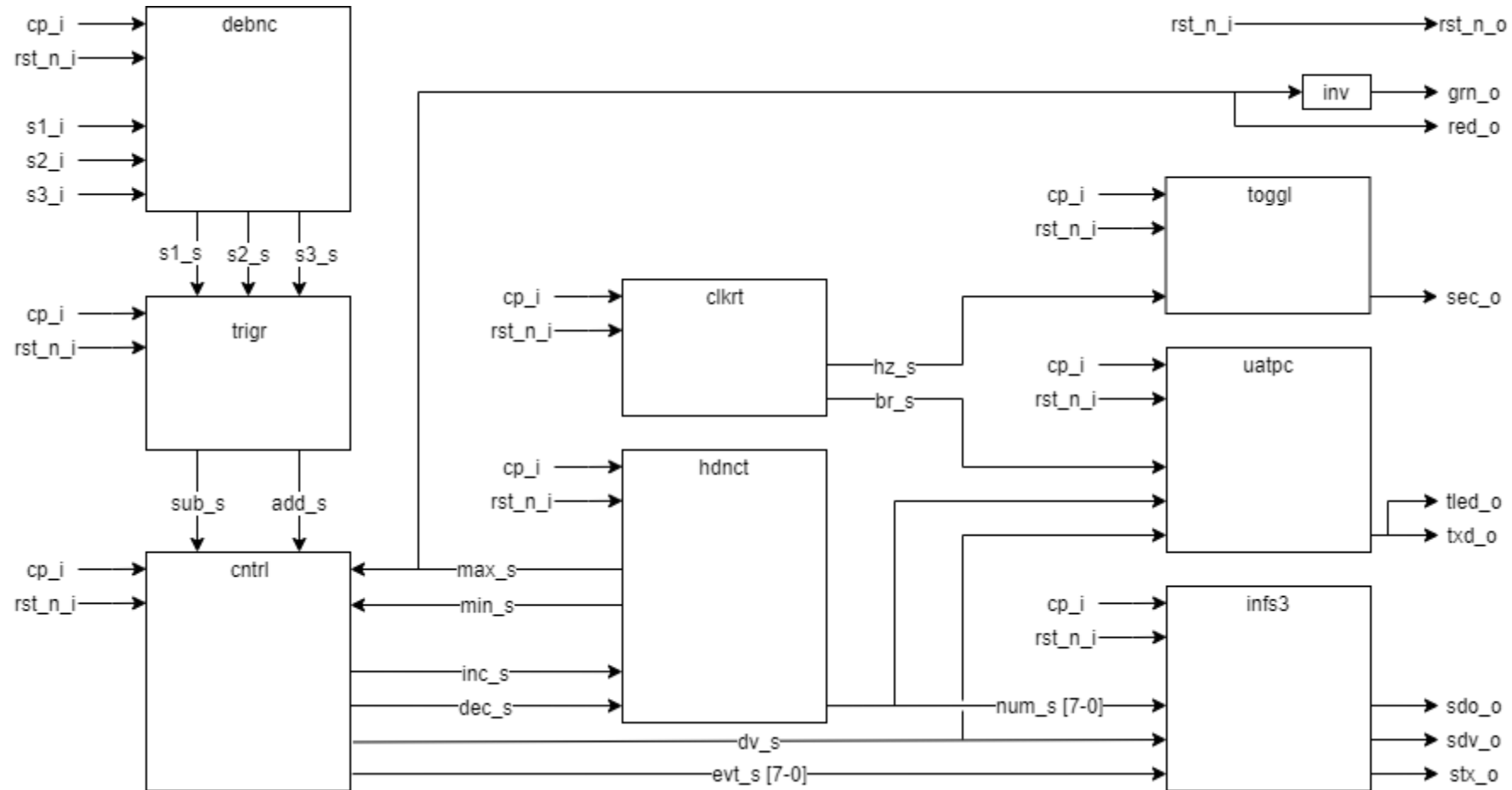


# Circuit Design Flow Chart



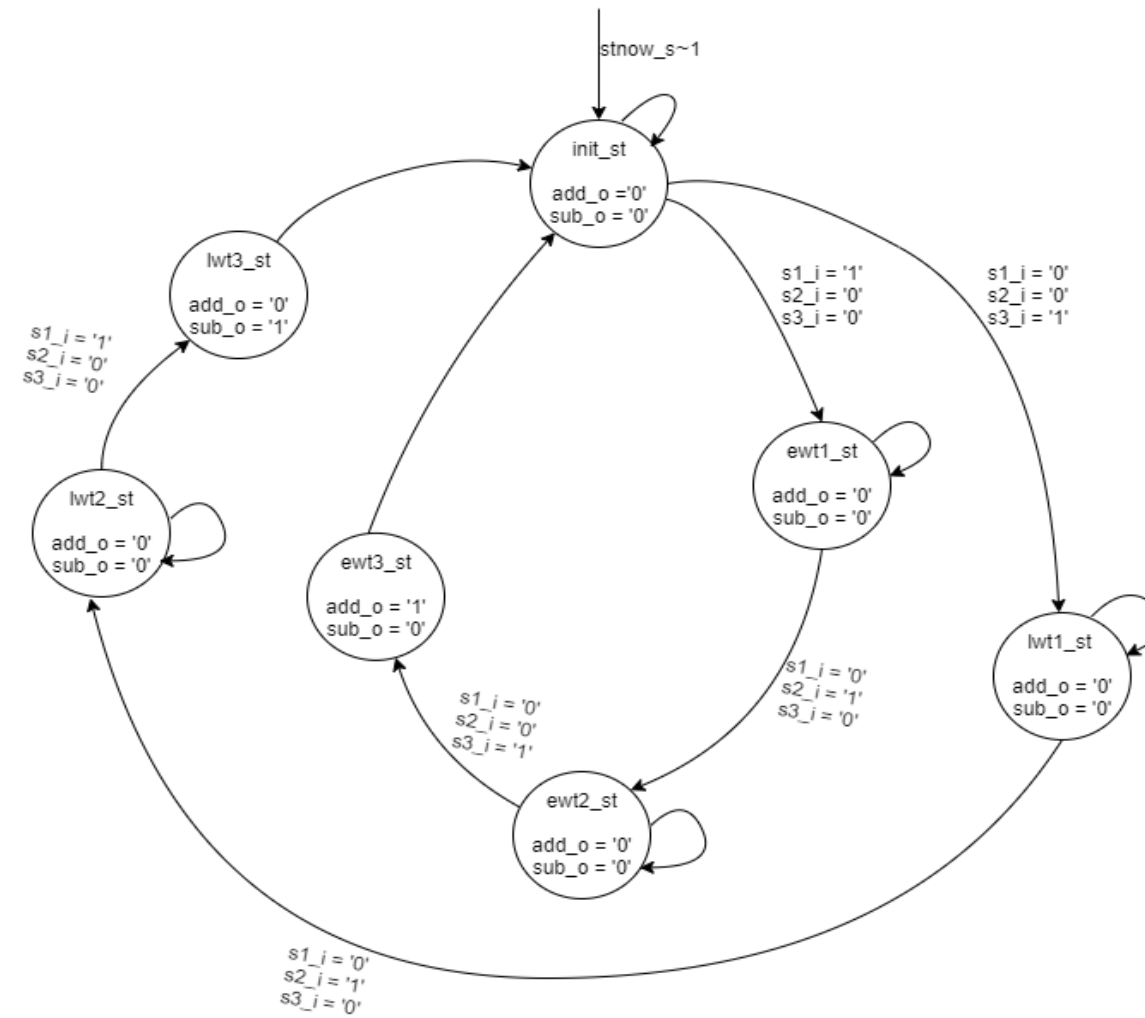
# Circuit Design

## Top-Level



# Circuit Design

## Trigger



# Circuit Design

## Control Unit

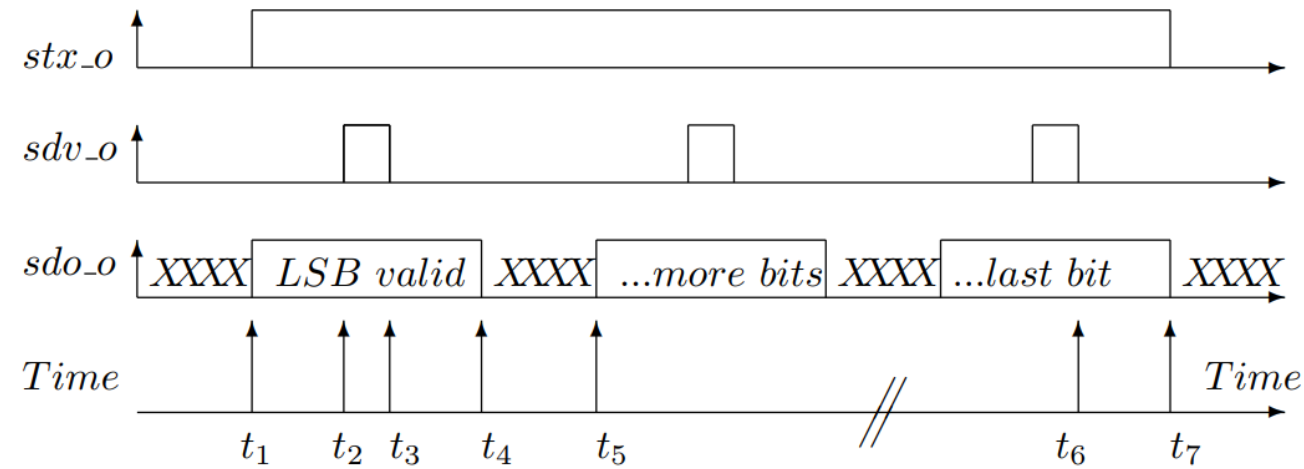




# Circuit Design

## Interface S3

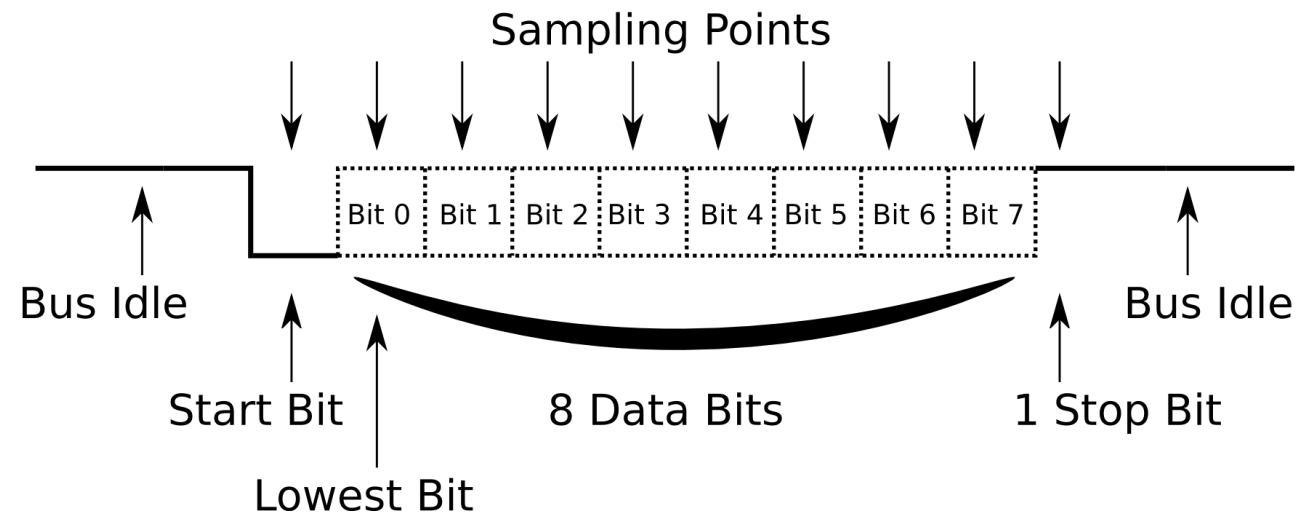
### 3-Wire-Interface



# Circuit Design

## UART

### UART with 8 Databits, 1 Stopbit and no Parity



# Circuit Design Program

C:\Users\User\Documents\GitHub\VHDL\C++\VHDLSerialData\Debug\VHDLSerialData.exe

Enter COM-PORT Number (standard "COM5"): 5

Opening Port: \\.\COM5

-----  
opening serial port successful  
-----

1610900919 1

Someone ENTERED

1610900922 2

Someone ENTERED

1610900928 1

Someone LEFT

1610900937 0

Someone LEFT

1610900953 1

Someone ENTERED

1610900956 2

Someone ENTERED

1610900960 3

Someone ENTERED

Max. number of People is reached

# Circuit Design Implementation

In real world assumptions:

- ☐ Only one door to enter/exit
- ☐ Everyone completes the enter/leave process completely
- ☐ No one enters, when the room is full
- ☐ No one leaves, when room is already empty

Thank you



Link: <https://github.com/nlsy/VHDL>