Design of Digital System (CS-201): Mini Project

Abstract

Automated Reception Desk in Hospital

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INTRODUCTION:

Hospital premises serve hundreds and thousands of patients and their visitors every day. The queries or the medical requirement varies from patient to patient. The reception desk is responsible for the smooth running of the entire clinic, practice or hospital. They are the touchstone between doctors and patients. One of their key functions include scheduling the appointment with the appropriate consultant depending on the type of medical requirement and the availability of the doctor. In this project, we plan to automate the process of assigning the appropriate consultant depending on their availability. The patient inputs the type of query, the system appoints the suitable doctor and informs the patient which consultant to visit, or wait if the doctor is already occupied.

DESCRIPTION:

In an attempt to show how this automation works, we consider a scenario where the hospital is equipped with two doctors namely A and B. The queries of the patient are numbered from 0 to 3 such that the query no. 0 can be solved only by the doctor A and similarly, the query no. 3 can be solved only by the doctor B. The query numbered 1 and 2 can be solved by both doctor A and doctor B.

For example, if the doctor A is occupied and the incoming patient has query no. 0, then he/she has to wait.

The input will be a four-bit integer out of which 2 bits represent the query no. of the incoming patient and the remaining 2 bits is a system generated input which represents the availability of the suitable consultant.

The output will be a two-bit integer which informs the patient whether the suitable doctor is available or if he/she is required to wait. In the former case, two bits represent the doctor to consult (A or B). In the latter case, the wait signal is given, after the waiting time, the input is requested again.

COMPONENTS REQUIRED

1. Basic logic gates
2. Flip flop (used as a register)
3. Counter (used as a timer)

REFERENCES

1. Digital Design by Morris Mano
2. http://www.fpga4student.com/2016/11/verilog-code-for-trafficlight-system.html
3. www.researchgate.net