Sequential control

Aim of the work

To understand the sequential process, states, conditions, etc.

1 Door lock control

Door lock control. Door lock control device has a binary state.

Input signals:

ID - ID cart is valid

O - "door opened" to observe the state of the door

Output signals:

M - to the magnet of the door's lock, which opens the lock

H - horn signal

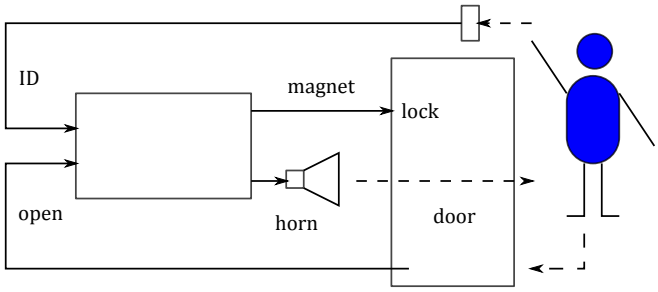

Figure 1: Door lock system

Signal ID generates the output M, which opens the lock for three seconds. The door should be opened manually (outside if $M = 1$, from inside always), opening of the door causes the signal O. If after the door opening (for 5 seconds) it is not closed, the horn sound H is turned on until the door is closed.

Task

Describe the controller work using states (door and lock: open / closed), and transition conditions.