Assignment 4: Keyboard FSM using MIPS

Rathour Param Jitendrakumar
190070049
EE-309, MicroProcessors
April 18, 2021

We are using an FSM based approach to perform Keyboard Scanning.

FSM is used to avoid debouncing. There are
4 states – Idle, Keypress seen, Keypress confirmed, Keypress released
3 actions – Donothing, Findkey, Reportkey
2 test routines – AnyKey, TheKey
Stored in a tabular data structure (Appropriate labels should be given to them)

State	Test
0	0
1	1
2	1
3	1

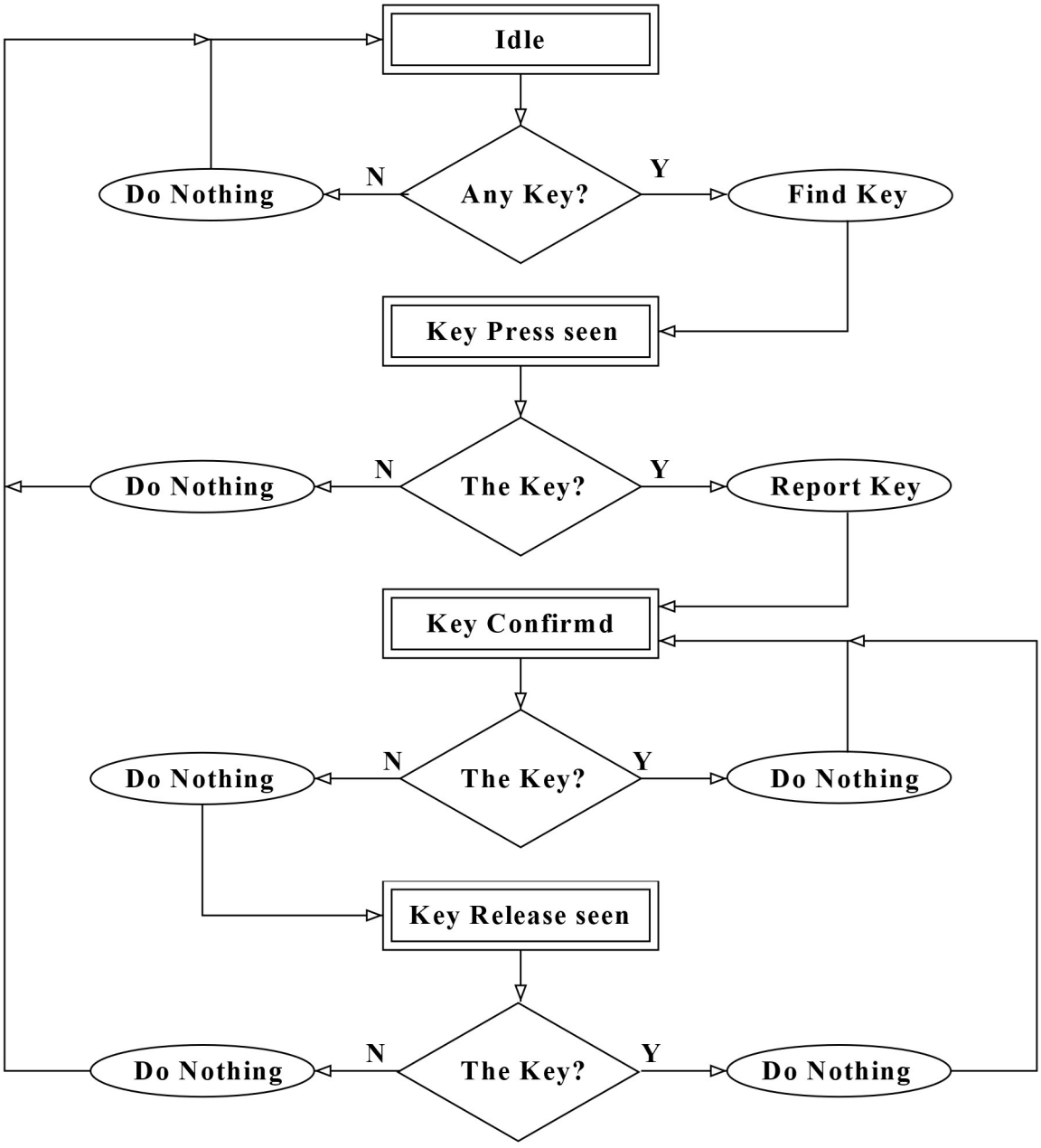
St.	Yes Case	
	Action	Next St.
0	1	1
1	2	2
2	0	2
3	0	2

St.	No Case	
	Action	Next St.
0	0	0
1	0	0
2	0	3
3	0	0

States: 0:Idle 1:Press 2:Conf. 3:Release
Tests: 0:AnyKey 1:TheKey
Actions: 0:Nothing 1:FindKey 2:ReportKey

Program Operation –

- FSM subroutine
  - Jump to test for current state by finding from table and current state
    - AnyKey, TheKey
  - Perform actions according to test answer & current state using DPTR
    - Donothing, Findkey, Reportkey
  - Depending on test answer get to next state



    - Loop back to FSM begining
- Return to main function (won't happen)