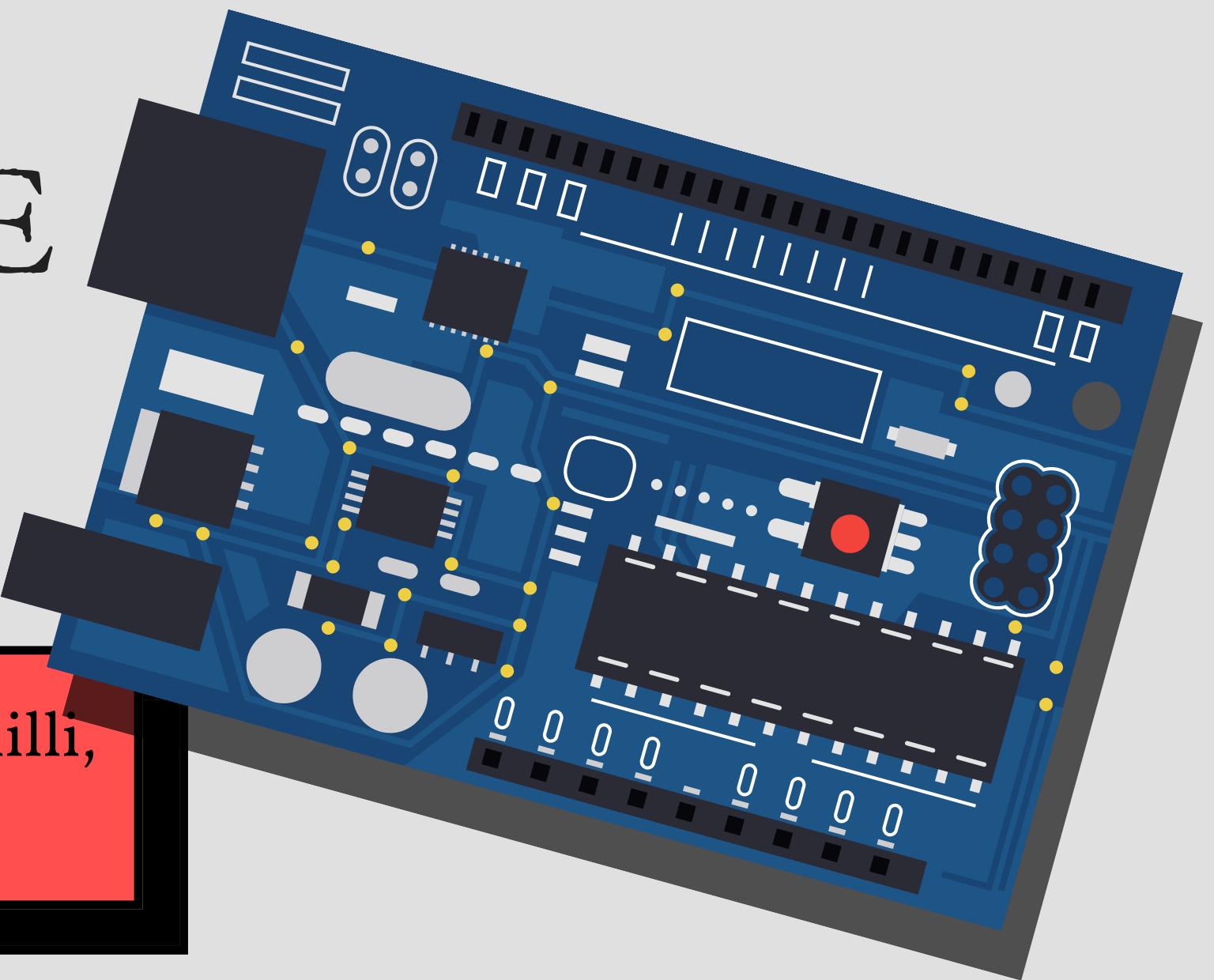


An ECE 5440/6370 Presentation on

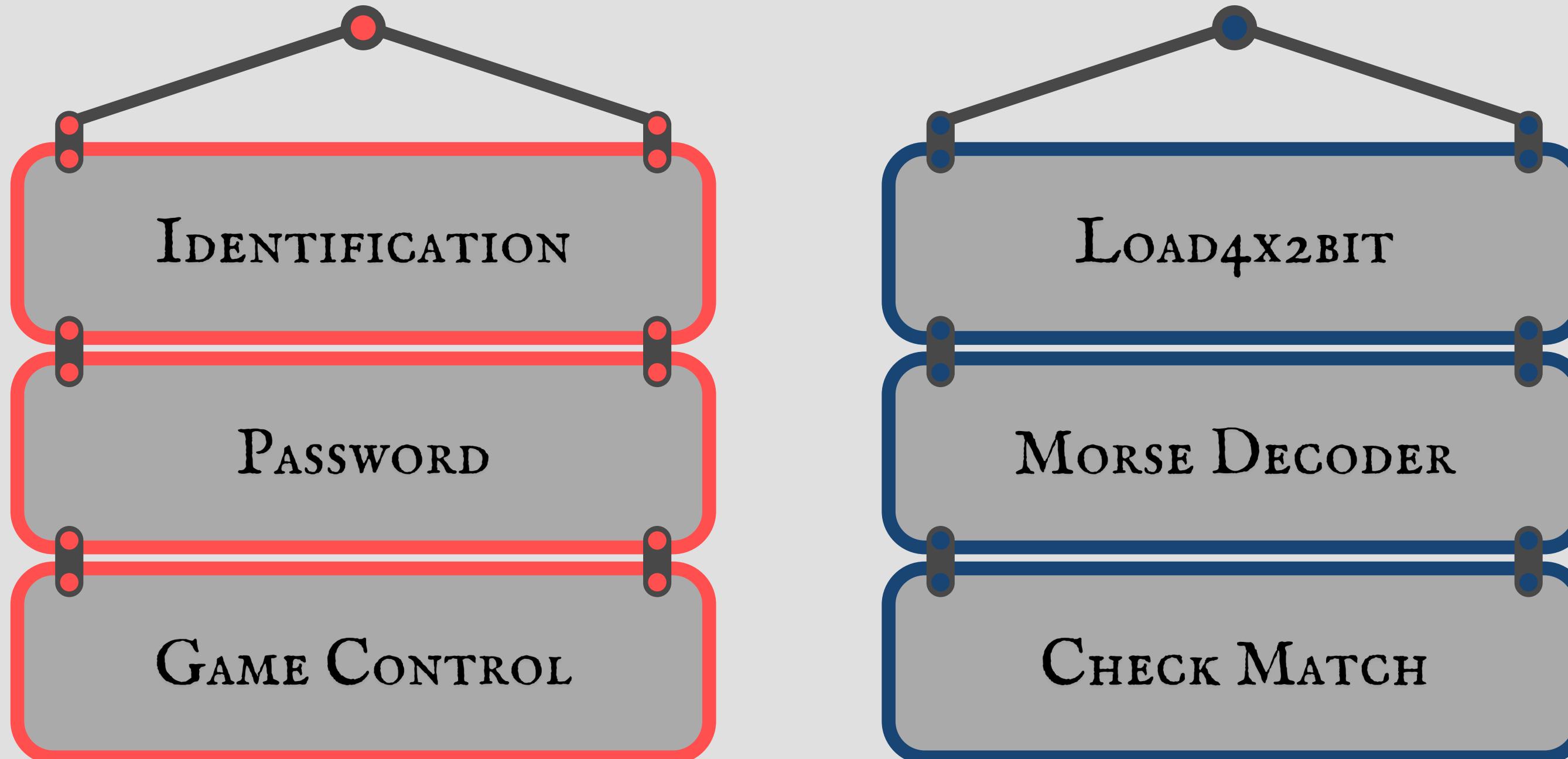
CODEBREAKER: A MORSE CHALLENGE ON FPGA

Mohammad Alkildar, Joshua Onuegbu, Rishabh Nallamilli,
Abdur Aziz & Tri Tin Tran.



O.

SYSTEM ARCHITECTURE



I.

AUTHENTICATION & ACCESS CONTROL

4-DIGIT
IDENTIFICATION
USING 4-BIT
SWITCHES

6-DIGIT
PASSWORD
VERIFICATION
USING 4-BIT
SWITCHES

REAL TIME
LED
FEEDBACK

LOG IN
TRIGGERS GAME
SESSION



II.

GAME LOGIC & TIMING



GAME
CONTROLLER
FSM

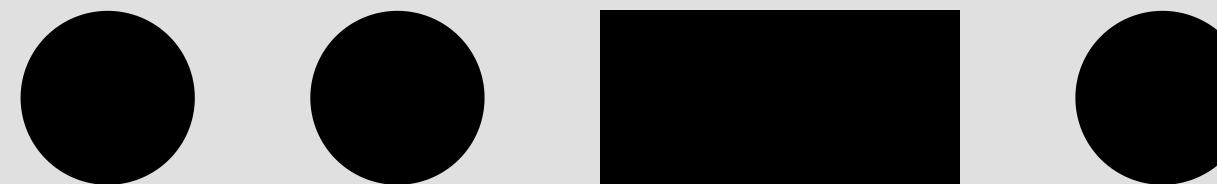
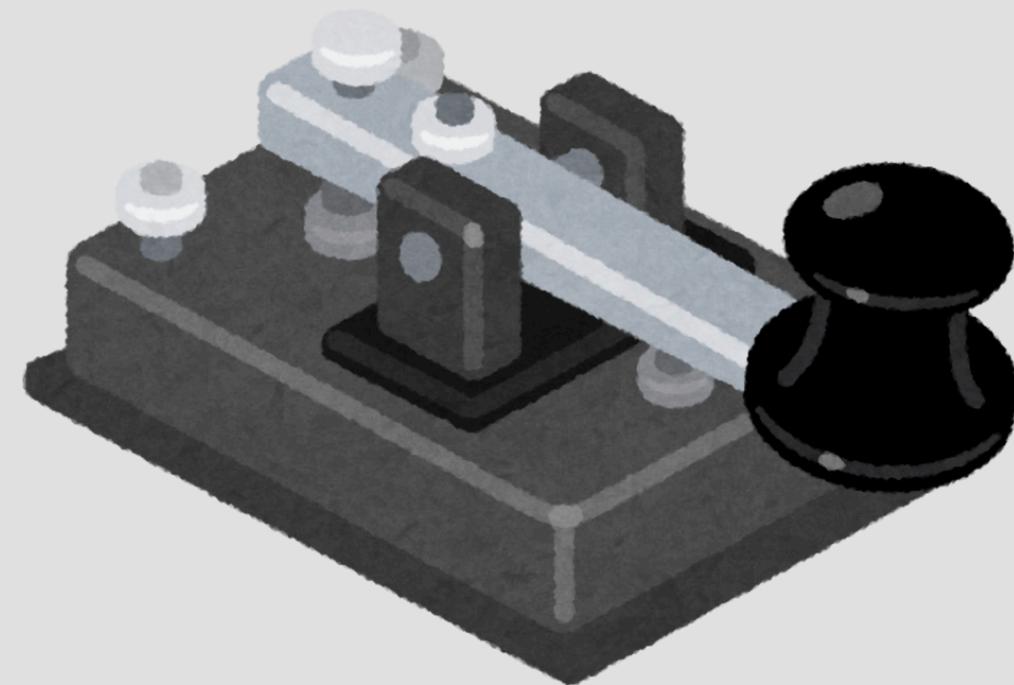
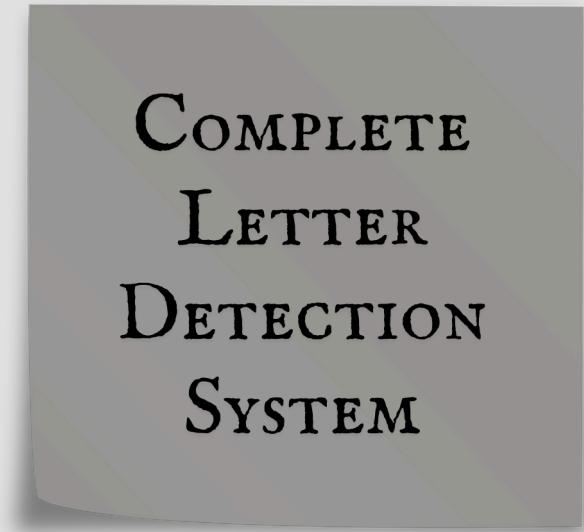
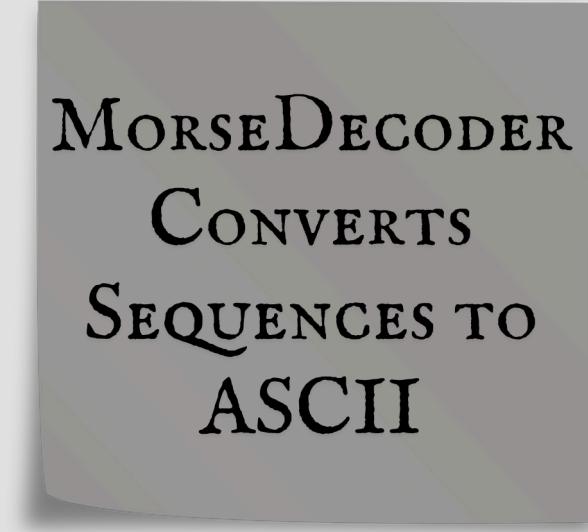
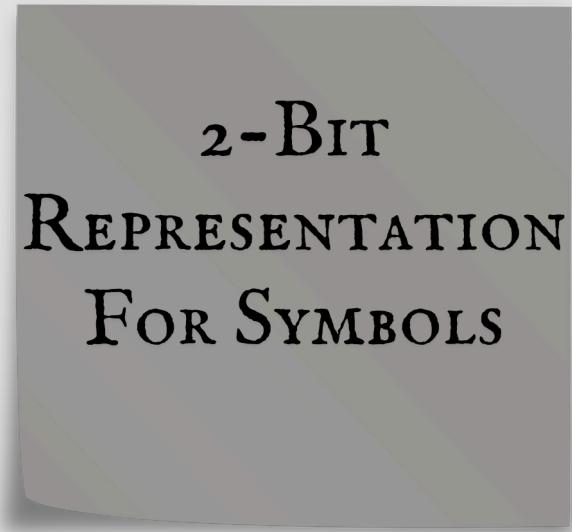
99-SECOND
TIMER

BLOCK INPUTS
DURING
INACTIVE
TIMER

SESSION
RESET
&
LOG OUT

III.

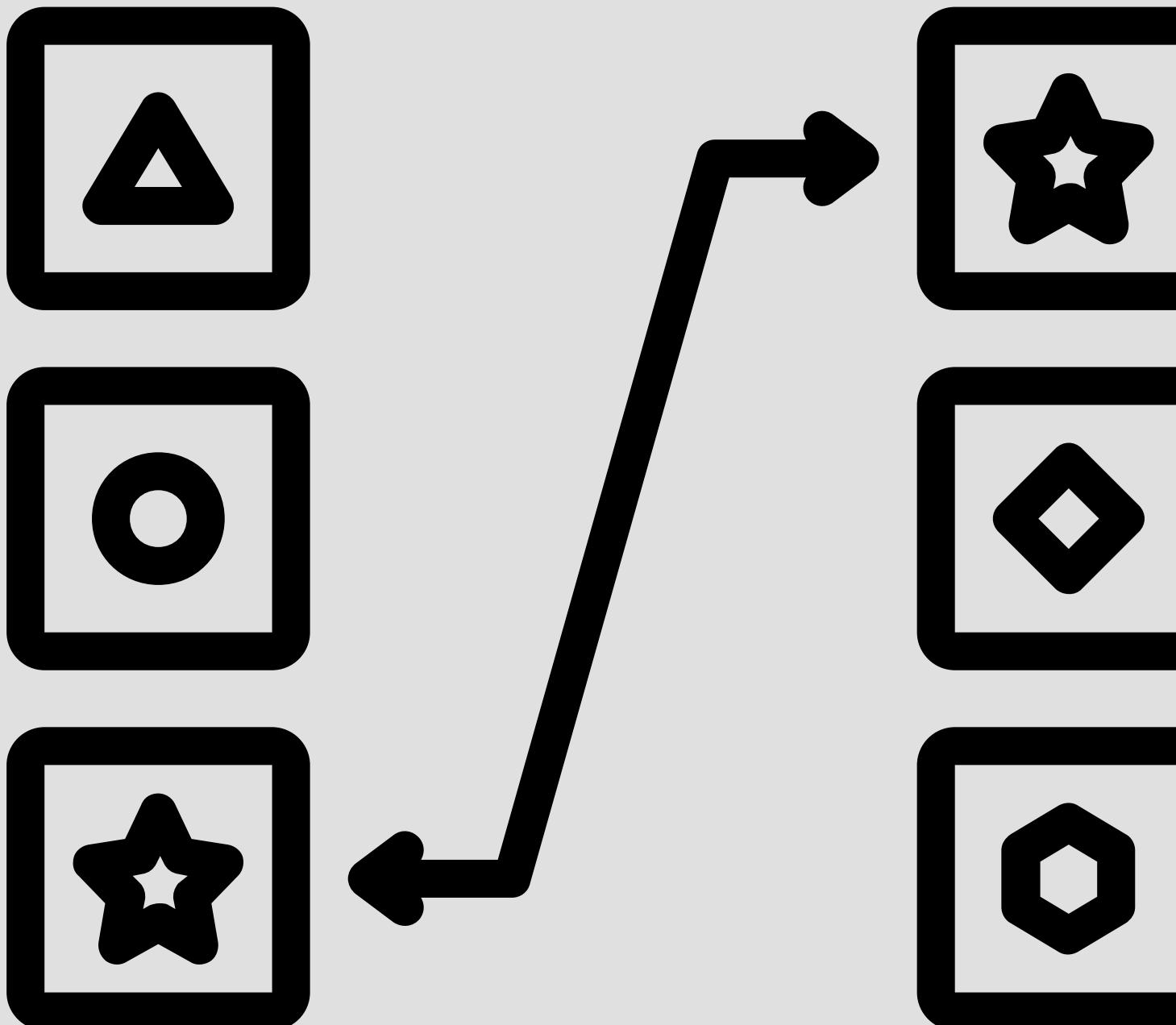
MORSE CODE INPUT & DECODING



IV.

WORD MATCHING & SCORING

TARGET
WORDS STORED
IN ROM



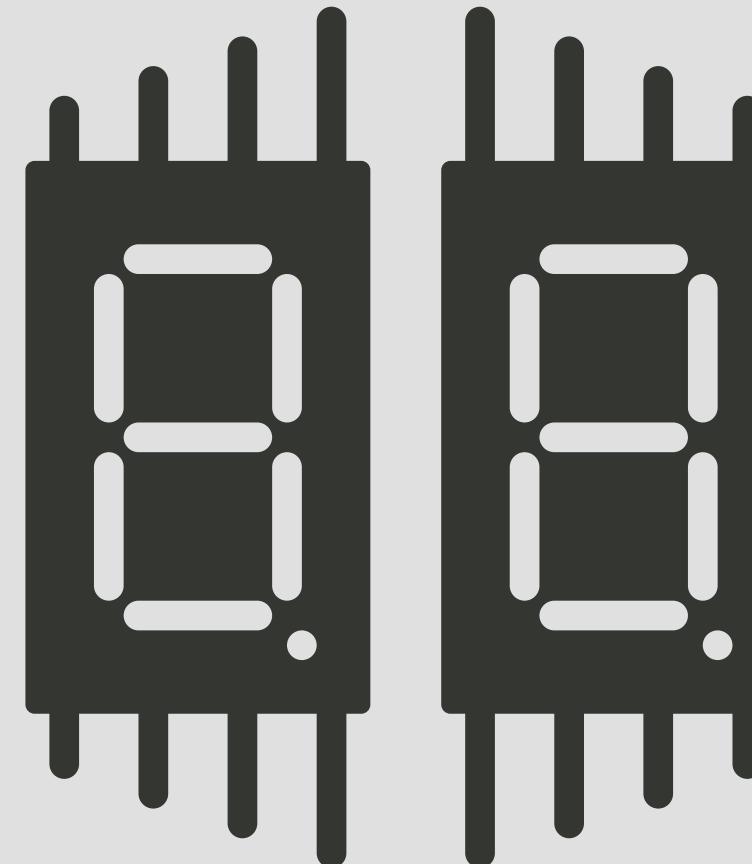
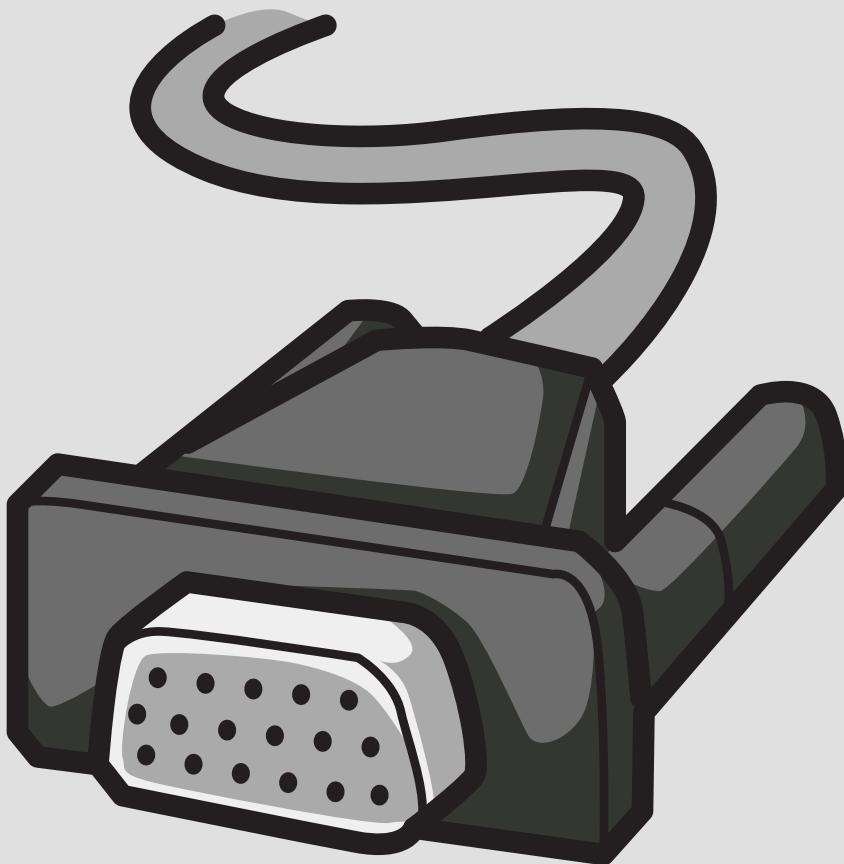
LFSRRNG
FOR RANDOM
WORD
GENERATION

CHECKMATCH
COMPARES
INPUT AGAINST
TARGETS

POINTS
AWARDED FOR
MATCHES

IV.

DISPLAY & FEEDBACK



FONTROM FOR
8x8 BITMAP
CHARACTER
RENDERING

640x480
VGA
OUTPUT
At 60Hz

CONTEXT
DEPENDANT
SCREEN
MATCHES

7 SEGMENT
DISPLAY FOR
COUNTDOWN &
SCORE

THANK

YOU!