

Final Project Proposal

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Design Topic

- ✓ Design and implement a smartphone game calls “BrainWars”.

Input / Output Table

Input	Function	Output	Function
Button S1	Send or accept game invitation	LCD Display	Display the game frames
Button S2	Cancel game invitation	Speaker	Play music
Keypad 0~F	Multiple game functions (such as up, down, pressed number)	LED Lights D1~16	Decorative lights
DIP switch 1	Music On/Off		
Connector A1	Clock Sync Signal In	Connector B1	Clock Sync Signal Out
Connector A2~4	Game Status Sync In	Connector B2~4	Game Status Sync Out
Connector A5	Music Sync Signal In	Connector B5	Music Sync Signal Out
Connector A6~14	Score In	Connector B6~14	Score Out
Connector A15~17	Dialogue In	Connector B15~17	Dialogue Out

Functions of the proposed BrainWars

- ✓ Basic Game Operations
- Two players play the same three game stages to see whose reaction is faster.
 - The stages will be chosen randomly from six small games without repeats.
 - Players can send some picture dialogue at stage description state.
 - Faster to finish the request, more scores will get.
 - Every game stage has its time limitation. If time is out, the game will proceed to the next stage.
 - After three stages gaming, sum up the scores in each stages to see who is the winner.
- ✓ Game Status Control (Finite State Machine)

State	Description	Input	Next State
Initial	Show game initial frame	Button S1	Gaming Invitation
Gaming Invitation	Send game invitation to Player 2	Button S1	Stage 1 Description
Gaming Invitation		Button S2	Initial
Stage 1 Description	Describe how to play the stage and send dialogue to Player2	Keypad A~F	Stage 1
Stage 1	Choose from six game stages randomly	Keypad 0~9	Stage 2 Description

Stage 2 Description	Describe how to play the stage and send dialogue to Player2	Keypad A~F	Stage 2
Stage 2	Choose from six game stages randomly	Keypad 0~9	Stage 3 Description
Stage 3 Description	Describe how to play the stage and send dialogue to Player2	Keypad A~F	Stage 3
Stage 3	Choose from six game stages randomly	Keypad 0~9	Game Result
Game Result	Sum up the scores and determine the winner	None	Initial