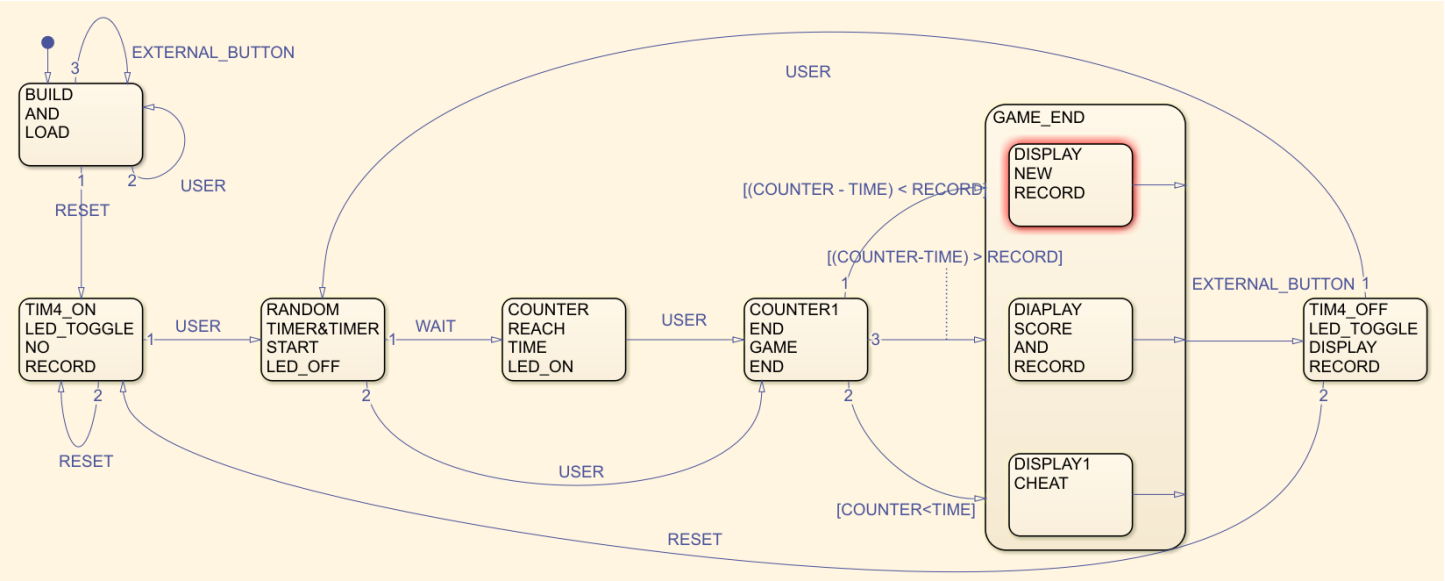

Figure 1: Finite State Machine

States \ Interrupts		RESET	USER	EXTERNAL BUTTON
000	Build & Load (Blank Page)	1		
001	LED Toggling No Record	1	3	
010	LED Toggling With Record	1	3	2
011	LED OFF Counting Generated Time	1	4	1 or 2
100	LED ON Display Cheat	1		1 or 2
101	Counter Reach Time LED ON	1	4, if Counter == Time 6, if Counter > Time	1 or 2
110	LED ON Display Score & Record	1		2

Figure 2: State Table

Answers to Questions:

1. Ideally an external clock would be the best choice in terms of timer accuracy, while here a **prescaler** is introduced to allow the timer to be clocked at the desired rate. It reduces the timer's resolution but decreases the chances of overflow and underflow.
2. Wait-loop can only focus on one task when the loop runs, while interrupts allows multitasking where it fire an interrupt only when a signal is received.
3. Interrupts is used.

   Polling method detects a specific event by continuously checking for updates periodically, where the latency is associated with the length of the period. Interrupts method detects an event by receiving a generated signal, which is more efficient and energy-saving.
4. EEPROM can be erased and reprogrammed, which makes it reusable, while EPROM can only be erased and programmed once then remain unchanged.