

HomeWork3 Z3

Outline Chapter Z4

Exercises

Capture each system as a State Machine (as described in chapter 3). Use RIBS and RIMS as appropriate below. (Be sure RIBS' 'type' option has 'Asynchronous SM' selected).

2. An automatic door at a store has a sensor in front (A1) and behind (A0). The door opens (B0=1) when a person approaches from the front, and stays open as long as a person is detected in front or behind. If the door is closed and a person approaches from the behind, the door does not open. If the door is closed and a person approaches from the front but a person is also detected behind, the door does not open, to prevent hitting the person that is behind.

4. An amusement park ride has sensor mats on the left (A0) and right (A1) of a ride car. A ride operator starts the ride by pressing a button (A7); each unique press toggles the ride from stopped to started (B0=1) and vice-versa. If anyone leaves the ride car and steps on a sensor mat, the ride stops and an alarm sounds (B1=1). The alarm stops sounding when the person gets off the sensor mat. The only way for the ride to restart is for the operator to press the button again. The ride never starts if someone is on the sensor mat.