

ECE 321 Lab
Software Requirements Engineering
Department of Electrical and Computer Engineering
University of Alberta

404 Team Name Not Found

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1 Customer:

Client: Alberta Traffic Supply Ltd.

7798 16 th Street

Edmonton, Alberta, T6P 1L9

Western Canada largest traffic sign manufacture and traffic control company

2 Definitions

*Labels **1,2,3,P1,P2,P3,B3,S2,G1,G3** can be found in Figure 1.*

1. **TLMS** - **T**raffic **L**ight **M**onitoring **S**ystem
2. **RB** - **R**eset **B**utton
3. **M** - Hardware malfunction: 1 indicates a malfunction, 0 for normal operation
4. **1** - Light on Road 1
5. **2** - Light on Road 2
6. **3** - Light on Road 3
7. **P1** - Pedestrian light on road 1
8. **P2** - Pedestrian light on road 2
9. **P3** - Pedestrian light on road 3
10. **t1** - Timer for **1**
11. **t2** - Secondary timer for everything else
12. **G1** - Left turn signal on road 1
13. **G3** - Left turn signal on road 3
14. **S2** - Magnetic sensor which detects if a car/motorcycle is waiting on **2**
Outputs: 1 if vehicle waiting, 0 otherwise
15. **B3** - Button on road 3 which a pedestrian can hit to request to cross the intersection
16. **BG** - **B**linking **G**reen
17. **BR** **B**linking **R**ed
18. **D** - **D**ay (6:00-20:00)
19. **N** - **N**ight (20:00-6:00)
20. **Clock** - Can have value **D** or **N**
- 21.
- 22.

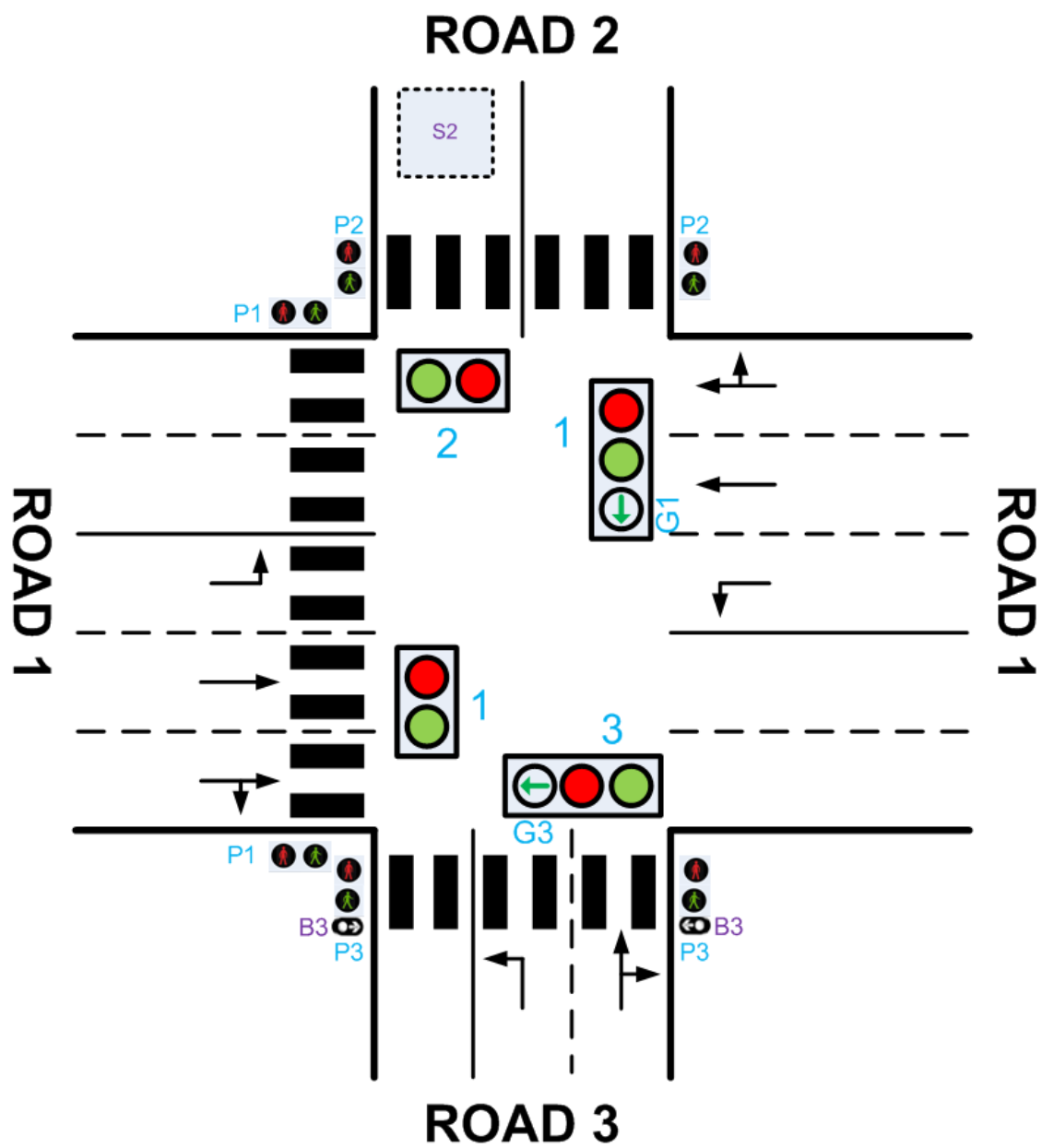


Figure 1: INSERT CAPTION HERE

3 Description

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4 Requirements

1. yooo

5 Nice-to-haves

1. yooo

6 State description

Note:

- Labels **1,2,3,P1,P2,P3,B3,S2,G1,G3** are defined on page 2 and in Figure 1 on page 1.
- **Green** and **Red** text indicate what colour the light should be in the respective state

1. Default

- **1,P2**
- **2,3,P1,P3,G1,G3**
- **t1** activated
- **M: 0**
- **Clock: D**

2. Green G1

- **G1,P1**
- **1,2,3,P2,P3,G3**
- **t2** activated
- **M: 0**
- **Clock: D**

Note:

- (a) **Green G1 S2** is this state, but when **S2=1**

3. Green 3

- **3,G3**
- **1,2,P1,P2,P3,G1**
- t2 activated
- M: 0
- Clock: D

Note:

(a) **Green 3 S2** is this state, but when **S2=1**

4. Green P3

- **1,P2,P3**
- **2,3,P1,G1,G3**
- t2 activated
- M: 0
- Clock: D

Note:

(a) **Green P3 S2** is this state, but when **S2=1**

5. Green 2&3

- **2,3**
- **1,P1,P2,P3,G1,G3**
- t2 activated
- M: 0
- Clock: D

6. Night

- **1** BG
- **2,3** BR
- **P1,P2,P3,G1,G3** are turned off
- M: 0
- Clock: N

7. Emergency

- **1** BG
- **2,3** BR
- **P1,P2,P3,G1,G3** are turned off

- **M:** 1
- **Clock:** **D** or **N**

Note:

- (a) When the system first starts up, it should briefly go into emergency mode with **M**=0 then immediately switch to default mode. (Because hardware malfunctions should be fixed before the system starts.)

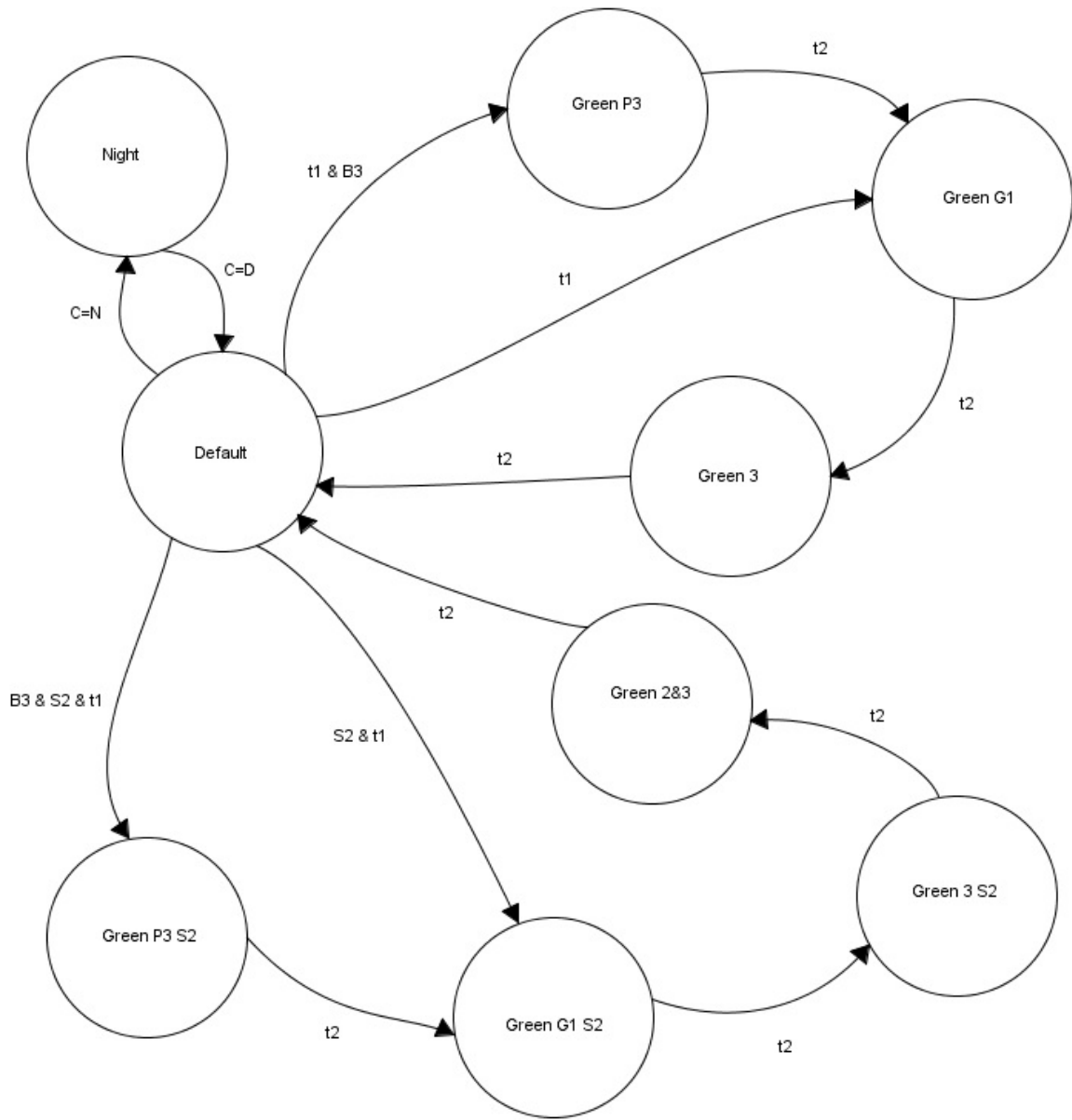


Figure 2: INSERT CAPTION HERE

7 Special considerations

1. Security

Here's how we make the system more secure:

- (a) step 1
 - (b) step 2
 - (c) step 3
- 2. Reliability
- 3. Synced timings