KFUPM   **C.C.S.E.**

COMPUTER ENGINEERING DEPARTMENT

COE 400   **System Design**

Project Proposal

City Traffic Controller

Prepared for   **By**

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INTRODUCTION

The first time that the idea of this project visited my mind was within attending COE200 Fundamentals of Computer Engineering T022. Then it visited again during ICS431 Operating Systems T041. The thought was growing as attending COE 441 LAN T051 with Dr. Atef Jawad Al-Najjar since most of his examples to explain LAN concepts were from car traffic system. This proposal is the first vision (abstract one) of the project that can be modified.

Objective: to keep path (road) free.

Approach: Appling OS and Networking concepts into car traffic system. Cars (packets) are dealing within crash free protocols.

Requirements: Network (either using existents WMAN or creating WLAN) of traffic light embedded systems (microcontroller, sensor, RFID reader,…).

Operations:

Notices: the range of operational network should be specified.

1. Normal Operation
   a. Definitions
      i. G:=green
      ii. C:=crowded (Object is still)
      iii. P:= previous traffic light.
      iv. N:= next traffic light.
   b. Logic (time should be considered and starvation should be avoided)
      i. if G_P AND not C_N THEN G
      ii. otherwise not G

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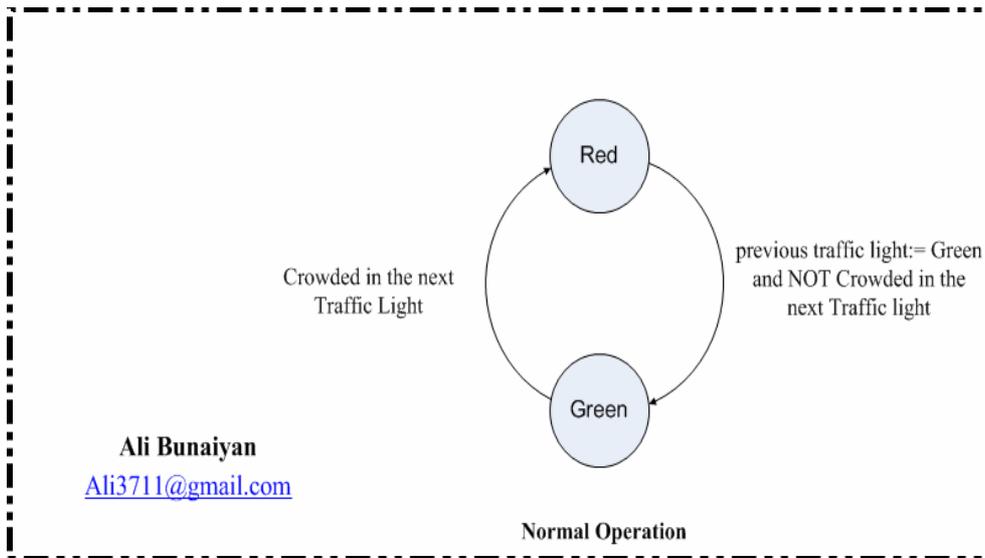
Normal Operation

2. Emergency Car:
   a. Specify the start-end points.
   b. Short path algorithm.
   c. Free that path.
   d. When emergency tag across that traffic light then the network (that traffic light) shell come back to normal operation.

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Emergency Car
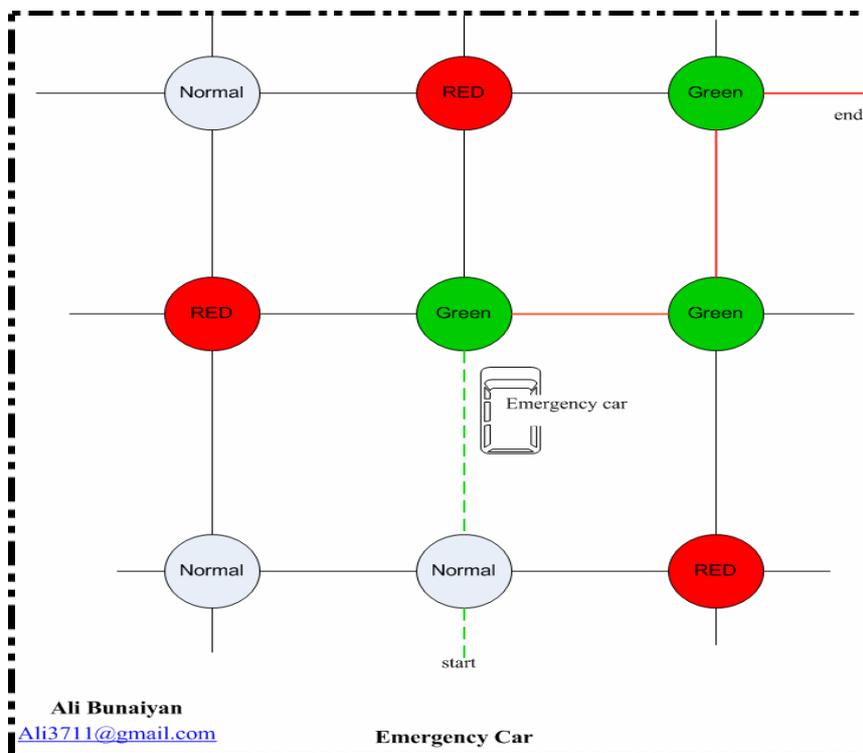
Feed Back: Static information is sent to (Database) decision maker in traffic officer (and civil engineering) for data mining.
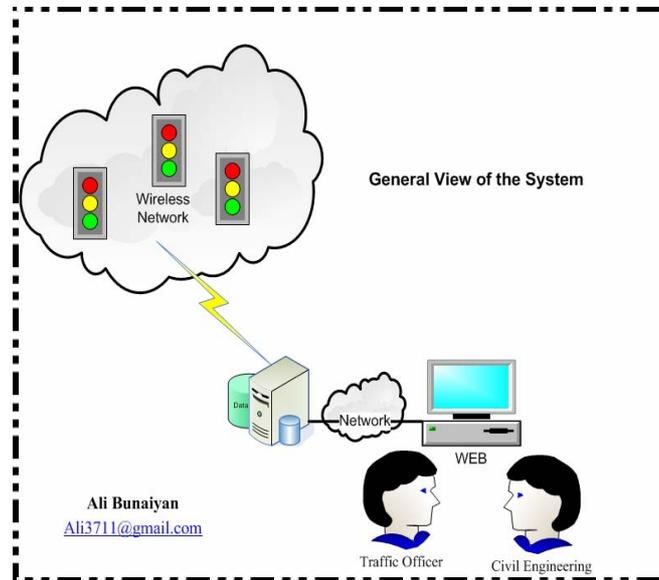
Note:

➢ This proposal is a general initial conceptual design of the project so it needs a lot of effort (group effort) in designing process.

➢ Molding process should be start with one traffic light embedded system then three, nine and so on.

➢ I would be happy to be involved in any stage of this system designing processes (if I have time).

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