University of Houston College of Technology

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Course: ELET 4308/4108
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Microcontrolled Automated Refill System (M. A. R. S.)

Presentation Overview

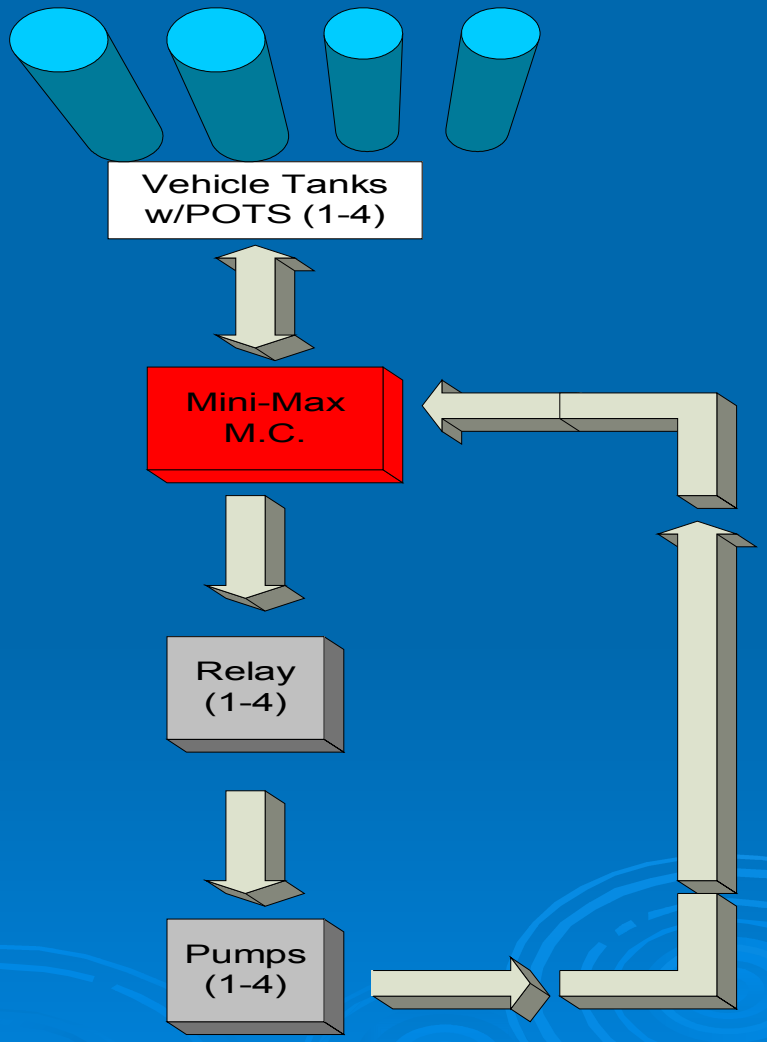
- Project Objectives
- Project Description
- Verification
- Cost Analysis
- Project Schedule

Project Objectives

Design an inexpensive system to monitor, and refill essential automotive fluids at the push of a button.

Project Description

Chart 1: Flow chart for M. A. R. S.



Verification

TESTING PROCEDURES

- Hardware
- Software
- Circuit Design

Cost Analysis

Item	Source	Qty	Est. Cost	Act. Cost
Mini-Max 8051 C	Lab	1	$69.00	$69.00
4 x 1 Keypad	Lab	1	$19.95	$19.95
24 x 2 LCD	Lab	1	$7.95	$7.95
TB-1	Lab	1	$39.00	$39.00

(continued)

Item	Source	Qty	Est. Cost	Act. Cost
12V, 5AH Battery	E. P. O.	1	$12.95	$12.95
Bumpers	E. P. O.	1 (bag)	$1.00	$2.95
Potentiometers	E. P. O.	4	$8.00	$7.80
Relay-2 Board	E. P. O.	2	$58.00	$67.91
Breadboard	E. P. O.	2	$7.50	$3.00
½” Check Valves	City Plumbing Co. & Universal Plumbing Supply Co.	4	$19.76	$23.35
¼” Adapters	City Plumbing Co. & Universal Plumbing Supply Co.	4	$10.00	$6.56
Sleeves and Inserts	City Plumbing Co. & Universal Plumbing Supply Co.	4	$2.00	$0.92
4’ Metal Rod	Home Depot	1	$5.00	$1.88
10’ Tubing	Home Depot	1	$4.00	$1.49

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Items	Source	Qty	Est. Cost	Act. Cost
Cereal Containers	Wal-Mart	4	$16.00	$15.84
Sport Bottles	Wal-Mart	5	$8.00	$5.76
Teflon Tape	Wal-Mart	1	$1.00	$0.97
Antenna Ball	Wal-Mart	4	$2.00	$3.88
Hinge	Wal-Mart	1	$1.00	$1.97
Wire Covers	Wal-Mart	3	$10.00	$7.74
Door Catch	Wal-Mart	1	$1.00	$0.66
5’ Velcro	Wal-Mart	1	$5.00	$5.96
Wire	Wal-Mart	2	$8.00	$5.36
Standoff Kit	BiPom	3	$18.00	$18.00

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DONATED ITEMS

- Plexiglas
- Lumber
- 4 Fluid Pumps

(continued)

FINAL COST ANALYSIS

- Starting Budget = $350.00
- Total Parts Cost of M. A. R. S. = $330.85
- Team 8 completed M. A. R. S., $19.15 under budget!

Project Schedule

Microsoft Project - ENGINEER2[1].mpp

	Task Name	Duration	Start	Finish
1	**Project**	**59.5 days**	**Wed 2/1/06**	**Wed 4/26/06**
2	**Planning**	**11.75 days**	**Wed 2/1/06**	**Thu 2/16/06**
3	Project Objective	1.25 days	Wed 2/1/06	Thu 2/2/06
4	Brainstroming Ideas	1 day	Wed 2/1/06	Wed 2/1/06
5	Research Market	1.25 days	Mon 2/6/06	Tue 2/7/06
6	Patent Reasearch	5 days	Mon 2/6/06	Fri 2/10/06
7	Narrowing down ideas to one	2.5 days	Mon 2/13/06	Wed 2/15/06
8	Develop Strategy	1.25 days	Wed 2/15/06	Thu 2/16/06
9	Assigning Task to all team member	2.5 days	Mon 2/13/06	Wed 2/15/06
10	**Design**	**5.5 days**	**Fri 2/17/06**	**Fri 2/24/06**
11	Discuss Potential Concepts	1 day	Fri 2/17/06	Fri 2/17/06
12	Define Requirements	2 days	Fri 2/17/06	Mon 2/20/06
13	Define Utility Needs	2 days	Fri 2/17/06	Mon 2/20/06
14	Identify project materials	4 days	Mon 2/20/06	Thu 2/23/06
15	Assest project maximum cost	2 days	Mon 2/20/06	Tue 2/21/06
16	Satisfy market needs	2 days	Wed 2/22/06	Thu 2/23/06
17	Present final concept	0.5 days	Fri 2/24/06	Fri 2/24/06
18	**Purchansing**	**10.5 days**	**Wed 2/15/06**	**Tue 2/28/06**
19	General project needs	3 days	Wed 2/15/06	Mon 2/20/06
20	Create a list of components	3 days	Mon 2/20/06	Wed 2/22/06
21	Assign proper locations for purch	2 days	Thu 2/23/06	Fri 2/24/06
22	Purchase parts	2 days	Sun 2/26/06	Mon 2/27/06
23	Verification of components	1 day	Tue 2/28/06	Tue 2/28/06
24	**Building**	**24 days**	**Tue 2/28/06**	**Tue 4/4/06**
25	Build actual housing for system	2 days	Tue 2/28/06	Wed 3/1/06
26	Setup mechanical components	12 days	Fri 3/3/06	Wed 3/22/06
27	Set LCD and Keypad	1 day	Thu 3/23/06	Thu 3/23/06
28	Motor interface with Micro-contorll	8 days	Fri 3/24/06	Tue 4/4/06
29	Construct IC circuit	6 days	Thu 3/2/06	Thu 3/9/06
30	Inteface the Micro-controller w/ se	2.5 days	Fri 3/10/06	Thu 3/16/06
31	Interface power requirements	7 days	Thu 3/16/06	Mon 3/27/06
32	**Programming**	**14 days**	**Mon 3/27/06**	**Fri 4/14/06**
33	Identify the code requirements for	14 days	Mon 3/27/06	Fri 4/14/06
34	Micro-controller code	10 days	Mon 3/27/06	Mon 4/10/06
35	Keypad	2 days	Mon 4/10/06	Wed 4/12/06
36	LCD	14 days	Mon 3/27/06	Fri 4/14/06
37	Sensors	14 days	Mon 3/27/06	Fri 4/14/06
38	**Testing**	**8 days**	**Fri 4/14/06**	**Wed 4/26/06**
39	Debug	8 days	Fri 4/14/06	Wed 4/26/06
40	Pump	5 days	Fri 4/14/06	Fri 4/21/06
41	Sensors	5 days	Fri 4/14/06	Fri 4/21/06
42	System Power	5 days	Fri 4/14/06	Fri 4/21/06
43	Mechanical parts	5 days	Fri 4/14/06	Fri 4/21/06

ANY QUESTIONS?