

University of Houston  
College of Technology  
Department of Engineering Technology  
Computer Engineering Technology  
Program

ELET 4308/4108  
Senior Project Presentation

**Automated Flood Prevention System**

Fall 2006  
November 30, 2006

Team 11



***Team Members:***

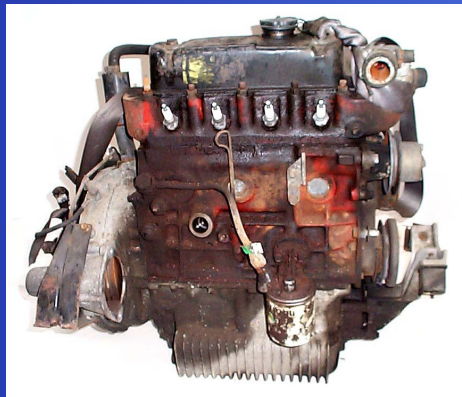
David Le  
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Hieu Vy  
Robert Foster

***Project Advisor:***

Dr. Farrokh Attarzadeh

# OBJECTIVE

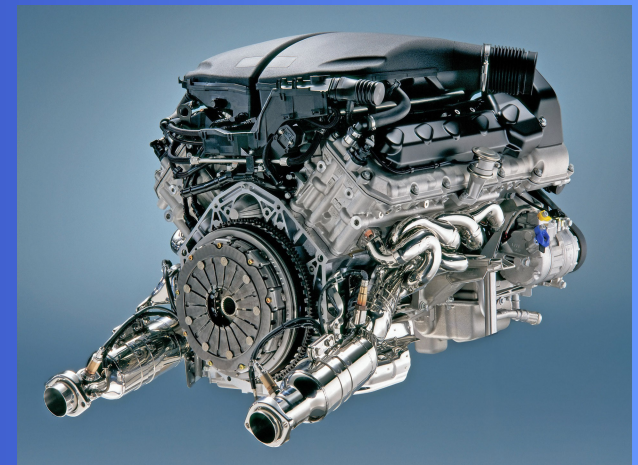
- To design an automatic product that would be able to give vehicles some protection against rising flood waters.
  - Prevent rust in the muffler and exhaust.
  - Prevent Water Intrusion of Engine Block
  - Prevents Damage from Engine Ignition



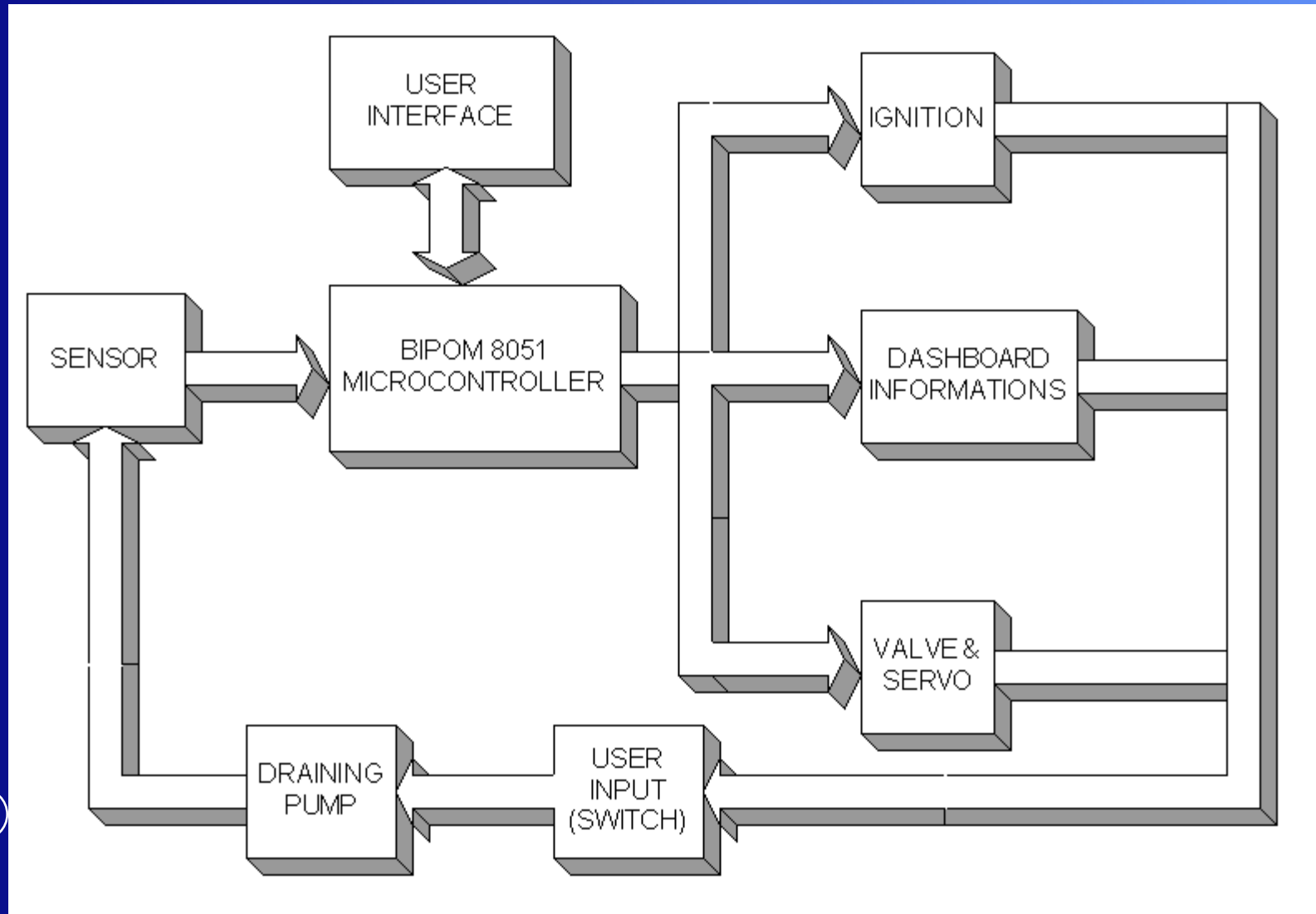
# BENEFITS



- Protects your engine
- Saves Money and Time on Repairs
- Lower Insurance Rate
- Ease User's Mind

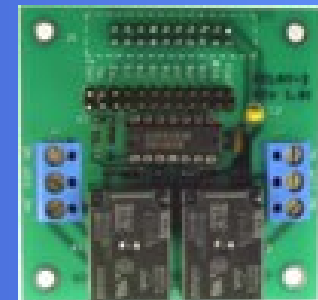


# BLOCK DIAGRAM



# TECHNICAL FEATURES

- BIPOM 8051 Microcontroller
  - Central Control Unit
  - Storage space for data
- Microcontroller power relay
  - Control the valve/pump power



# TECHNICAL FEATURES cont.

- Power supply

- 12V
- 4amp



- Water pump

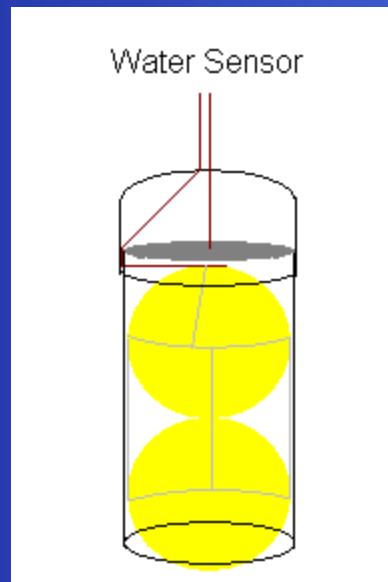
- Toyota windshield water pump
- 12V



# SENSOR

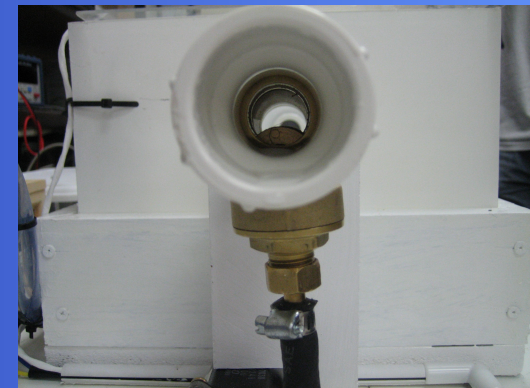
Detect the level of the water.

- PVC pipe/cap
- Ping pong ball
- Wires



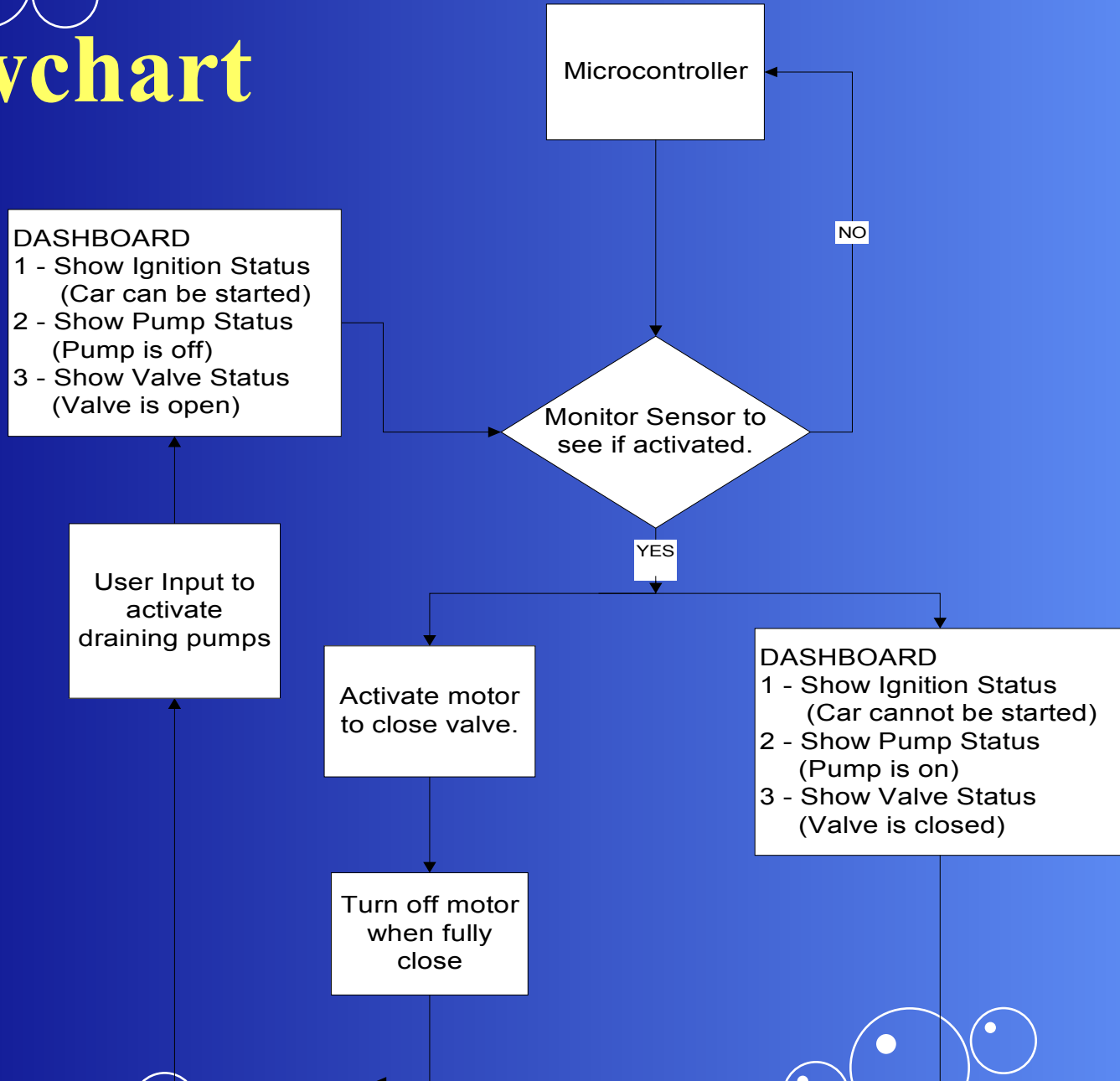
# MOTOR/VALVE

- Motor power window
  - Turn the valve
- Valve
  - Block the water
- Power relay
  - LD12F
    - 12VDC





# Flowchart

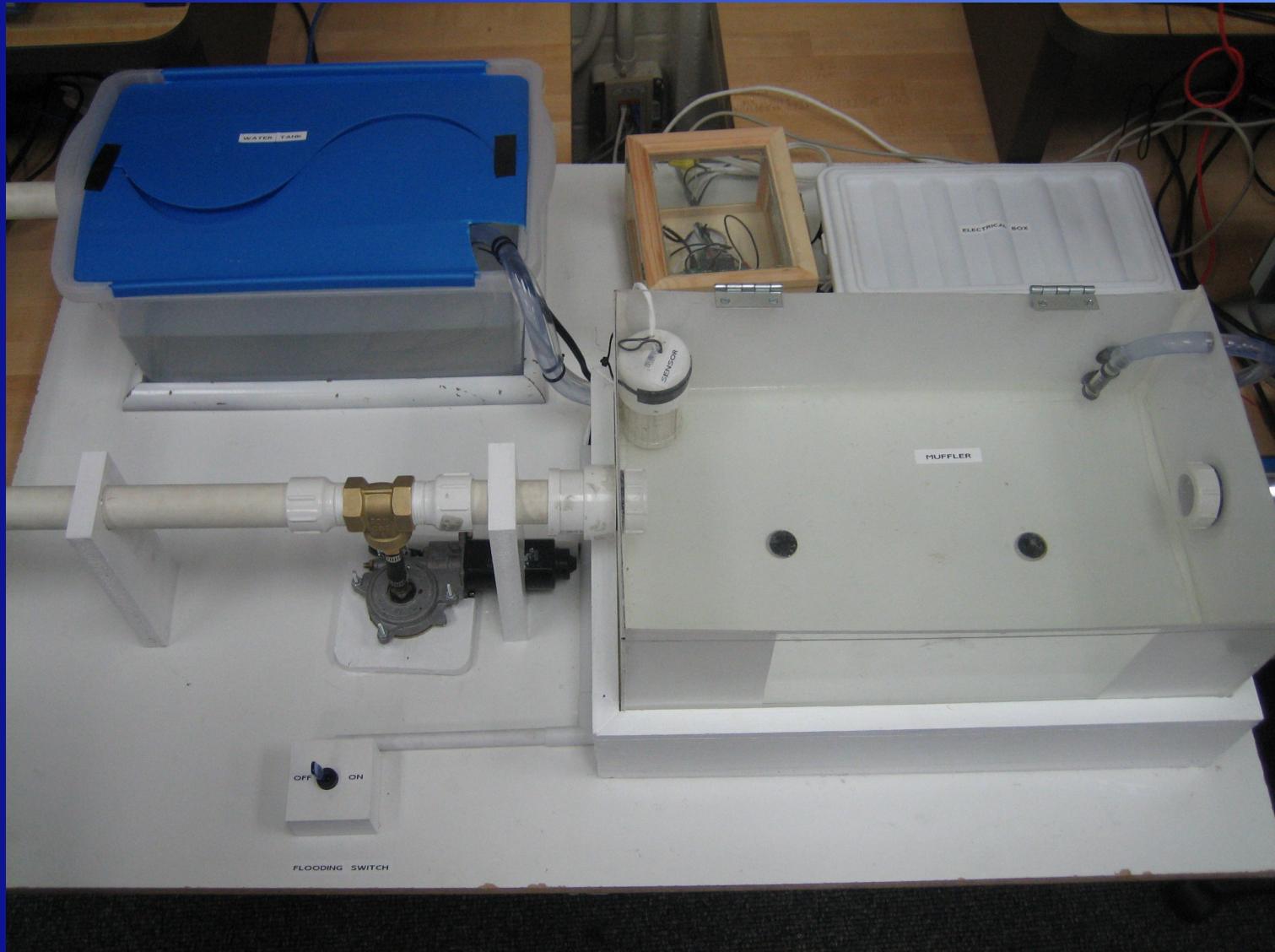


# DASHBOARD

- Display status of the valve
  - Open or close
- Engine status
  - Can or cannot start
- Pump status
  - On or Off



# FINAL PROJECT



# COMPONENT COST

Table 1

<i>material</i>	<i>quantity</i>	<i>unit price</i>	<i>total price</i>
<i>Plexiglass</i>	1	\$ 13.49	\$ 13.49
<i>Microcontroler set</i>	1	\$ 80.00	\$ 80.00
<i>Power relay</i>	2	\$ 29.00	\$ 58.00
<i>Glue</i>	1	\$ 7.96	\$ 7.96
<i>Misc. Plumbing Materials</i>	1	\$ 25.22	\$ 25.22
<i>Transformer</i>	1	\$ 6.95	\$ 6.95
<i>Electric Windshield Motor</i>	1	\$ 18.95	\$ 18.95
<i>Relay</i>	2	\$ 3.95	\$ 7.90
<i>Socket For Relay</i>	1	\$ 6.75	\$ 6.75
<i>12V 4A Battery</i>	1	\$ 18.95	\$ 18.95
<i>Clamp</i>	1	\$ 1.99	\$ 1.99
<i>Ping pong balls</i>	1	\$ 1.48	\$ 1.48
<i>Hingelid box</i>	1	\$ 3.17	\$ 3.17
<i>Water pump</i>	1	\$ 18.00	\$ 18.00
<i>1 inch valve</i>	1	\$ 12.47	\$ 12.47
<i>Winshield waterpump</i>	2	\$ 29.95	\$ 59.90
<i>Wood</i>	1	\$ 11.00	\$ 11.00
<b>Total</b>			\$ 352.18

# EQUIPMENT COST

Table 2

Part	Quantity	cost
Drill	1	\$ 349.10
Heat gun	1	\$ 39.00
Table saw	1	\$ 494.10
Adjustable drill bit	1	\$ 50.00
Solder	1	\$ 15.00
Compound miter saw	1	\$ 149.00
Jigsaw	1	\$ 50.00
Clamps	4	\$ 39.96
Total		\$1,186.16

# LABOR COST

Table 3

No.	Project Tasks	No. of Labors	Wages	Hours per Week	No. of Weeks	Total Cost
1	Planning & Designing	4	\$25.00	20	3	\$6,000.00
2	Mechanical Assembly	3	\$25.00	20	2	\$3,000.00
3	Electrical Assembly	3	\$25.00	20	2	\$3,000.00
4	Programming	1	\$25.00	20	5	\$2,500.00
5	Test & Debug	4	\$25.00	20	3	\$6,000.00
<b>Total:</b>					15	\$20,500.00

***Grand Total: \$ 22,038.34***

# REFERENCE

- United States Patent Office. <[www.uspto.gov](http://www.uspto.gov)>
- Home Depot. <[www.homedepot.com](http://www.homedepot.com)>
- Electronic Parts Outlet. [www.epo-houston.com](http://www.epo-houston.com)
- BiPOM Electronics, Inc. <[www.BiPOM.com](http://www.BiPOM.com)>
- Fry's Electronics <[www.outpost.com](http://www.outpost.com)>
- Hobby Lobby

# QUESTIONS?

