RED AI

Final Presentation
Outline

• RED AI
  – Introduction
  – Expert System

• Project Plans
  – Management Plan
  – Evaluation Plan
  – Marketing Plan
  – Funding Plan

• Road Map
  – Phase 0
  – Phase 1
  – Phase 2
  – Phase 3

• Summary
RED AI
(Introduction)
As a Manager Do You Ever

Have patrons waiting in lines...
Get Complaints About...

Poor food production...
Or Hear About...

we waited
30 min
NO SERVICE

Slow Service ...
Have an inefficient restaurant
Industry Statistics

- $530 billion
- 900,000 restaurants
- 13 Million people employed

Manager or Owner

- 60,000 new restaurants each year
Manager or Owner

- $400,000 average cost
Managers Problem

Manager or Owner

Staff

menu

Customer Flow

Inventory

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Manager or Owner

- 60% new restaurants fail in the first 3 years
- $14 billion lost

What causes failure

- Too much data
- Confused Management
- Inefficiency
- Failure

1. Business weekly (May 2007)
How Do We Define Efficiency

Profit

Staff

Customer flow

Menu

Inventory

Service Efficiency

Menu Efficiency

Inventory Efficiency
• Service Efficiency - Service potential of staff matches customer flow
• Menu Efficiency – menu items strategically priced to maximize profit
• Forecast Demand
• Price Strategically
• Highlight areas of potential profit
Inventory Efficiency

- Inventory Efficiency – minimize spoilage & lack of ready ingredients
- Optimize hi / low stock levels
- Construct appropriate staging / preparation plan
Our Solution

MAN
Import

S
C
I
M

I

SIM

Output

Manager or Owner

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Staff / Customer Raw Data

- **Under Staffed**
- **Over Staffed**

Time in hours vs. Number of

1. EL Azteca, VA Beach (November 29, 2007)
Run the Demo
RED AI
(Expert System)
• 63% of restaurants hire at least one efficiency expert over their life time

• Average cost for this service is $80,000

• Average Return on Investment is nearly $120,000
Expert System

Restaurant Expert
Management Plan
Goals

• Maintain clear lines of communication between team members

• Mutual aid in the review of individual work

• Allow early identification of schedule hazards
Meetings

• Online Meetings
  – Sunday, Tuesday, Thursday @ 9pm

• Bull sessions
  – Monday, Wednesday following class
Individual Tasking

• Assigned weekly

• Progress reported daily

• Project Schedule Maintenance
  – Conducted on Wednesdays

• All weekly progress collaborated
Create Plans

Management Plan

- Evaluation Plan
- Funding Plan
- Marketing Plan
- Resource Plan
- Staffing Plan
- Risk Plan
Evaluation Plan
Each phase’s main deliverables will be measured by each part of the cycle.
Example of Network Evaluation

Network Topography Diagram

Database Servers

AI Cluster
Marketing Plan
• Independently-owned and non-franchised restaurants

• Why?
  – Do not have a tried and true model in place for efficiently running a restaurant

• Number of:
  – 70% of all restaurants are independent

• New restaurants (opened within the past 3 years)

• Why?
  – Relatively inexperienced and need assistance getting off the ground

• Number of:
  – 52 new restaurants opened daily in the United States
• 36% of 900,000 = 324,000 target restaurants.

• 3% buy a one year contract = $1.2M per year income

Survey

- Target 36%
- Don't Want 27%
- Non independent 30%
- Competition 7%
• Pre-packaged solution

• Low price point
• $100 per month for use of our software

• Why?
  – Affordable for target customer
    o In comparison, hiring one more worker at minimum wage costs about $1,200 per month
  – Low price point increases availability of our solution
When will we break even?

![Graph showing revenue, expense, and profit over years after "on shelf".]
Phase 1: Startup

- **Grants.gov**
  - Download Applications
  - SBIR Grants
  - Intelligent Systems Grants
  - Specialty Coffee Grants

- **National Science Foundation**
  - Grant Proposals
  - Application Guide
  - SBIR Contracts
Phase 2: Fast Track

- **US Small Business Administration**
  - SBIR Overview
  - SBIR Handbook
  - Loan Eligibility
  - SBA Loans

- **US Department of Commerce**
  - Loans & Grants
Phase 3: Investors

- Venture Capitalists & Angel Investor Groups
  - nvca.org
  - ventureworthy.com
  - fundinguniverse.com
  - usangelinvestors.com
  - MIT Angel Report
Phase 0
Staffing Resource Schedule Budget
Project Manager
Alexander Caulkins

Finance and Documentation
Brian Terribile

Marketing and Support
David Harris

Hardware
Matthew Crainer

Software
Patrick Bourque
Staff, Resources and Budget

• We are the staff

• Used ODU CS Department Resources

• Had no budget
Phase 1
SRSB
## Staff and Resources

<table>
<thead>
<tr>
<th>Name</th>
<th>Job Description</th>
<th>Rate</th>
<th>Days</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alexander Caulkins</td>
<td>Project Manager</td>
<td>$28K/y</td>
<td>18</td>
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<tr>
<td>Brian Terible</td>
<td>Documents and Finance</td>
<td>$28K/y</td>
<td>28</td>
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<tr>
<td>David Harris</td>
<td>Marketing and Support</td>
<td>$28K/y</td>
<td>14</td>
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<td>Matthew Crainer</td>
<td>Hardware Engineer</td>
<td>$28K/y</td>
<td>99</td>
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<tr>
<td>Patrick Bourque</td>
<td>Software Engineer</td>
<td>$28K/y</td>
<td>180</td>
<td>19,550</td>
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<tr>
<td>Jay Morris</td>
<td>Cluster Expert</td>
<td>$86K/y</td>
<td>11</td>
<td>3,040</td>
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<tr>
<td>Dr. Irwin Levinston</td>
<td>Database Expert</td>
<td>$84K/y</td>
<td>7</td>
<td>1,940</td>
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<tr>
<td>Dennis Ray</td>
<td>Artificial Intelligence Expert</td>
<td>$81K/y</td>
<td>3</td>
<td>830</td>
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<tr>
<td><strong>Total</strong></td>
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<table>
<thead>
<tr>
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<th>Description</th>
<th>Price</th>
<th>Quantity</th>
<th>Cost</th>
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<td>AI Cluster</td>
<td>Cluster for AI testing</td>
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<td>5</td>
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<tr>
<td>Terminals</td>
<td>To access Cluster and Program</td>
<td>400</td>
<td>6</td>
<td>2,400</td>
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<tr>
<td>Firewall</td>
<td>Protect Server and Cluster</td>
<td>1200</td>
<td>1</td>
<td>890</td>
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<tr>
<td>Key / License Server</td>
<td>Updating program</td>
<td>1,800</td>
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<td>1,800</td>
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<tr>
<td>SW Licensing</td>
<td>Windows 98se – Windows XP (+)</td>
<td>970</td>
<td>1</td>
<td>970</td>
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<tr>
<td><strong>Total</strong></td>
<td></td>
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<td><strong>10,370</strong></td>
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Final Presentation
December 10, 2007
<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
<th>Overhead (40%)</th>
<th>Total</th>
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<tbody>
<tr>
<td>Hard</td>
<td>$10,370</td>
<td>N/A</td>
<td>$10,370</td>
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<td>Staff</td>
<td>$48,470</td>
<td>$19,390</td>
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Total $78,230
<table>
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<th>Name</th>
<th>Job Description</th>
<th>Rate</th>
<th>Days</th>
<th>Cost</th>
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</thead>
<tbody>
<tr>
<td>Alexander Caulkins</td>
<td>Project Manager</td>
<td>$89K/y</td>
<td>130</td>
<td>44,500</td>
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<tr>
<td>Brian Terible</td>
<td>Documents and Finance</td>
<td>$58K/y</td>
<td>2</td>
<td>500</td>
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<tr>
<td>David Harris</td>
<td>Marketing and Support</td>
<td>$87K/y</td>
<td>251</td>
<td>83,900</td>
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<tr>
<td>Matthew Crainer</td>
<td>Hardware Engineer Manager</td>
<td>$73K/y</td>
<td>7</td>
<td>980</td>
</tr>
<tr>
<td>Patrick Bourque</td>
<td>Software Engineer Manager</td>
<td>$81K/y</td>
<td>175</td>
<td>54,700</td>
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<tr>
<td>Dennis Ray</td>
<td>Artificial Intelligence Expert</td>
<td>$81K/y</td>
<td>4</td>
<td>1,370</td>
</tr>
<tr>
<td>Dr. Irwin Levinsten</td>
<td>Database Expert</td>
<td>$84K/y</td>
<td>2</td>
<td>600</td>
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<tr>
<td>Sales Account Manager</td>
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<td>$62K/y</td>
<td>119</td>
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<td>Software Tester</td>
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<td>$34K/y</td>
<td>35</td>
<td>4,570</td>
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<td>C++ Programmer</td>
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<td>$67K/y</td>
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<td>Prolog Programmer</td>
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<td>$56K/y</td>
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<tr>
<td>Software Engineer</td>
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<td>$76K/y</td>
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<td>6,600</td>
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<tr>
<td>DB Admin</td>
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<td>$40K/y</td>
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<td>3,890</td>
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<tr>
<td>Network IT</td>
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<td>7,970</td>
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<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>AI Cluster</td>
<td>Cluster for AI testing</td>
<td>4,000</td>
<td>3</td>
<td>12,000</td>
</tr>
<tr>
<td>Router</td>
<td>To control the traffic in our network</td>
<td>800</td>
<td>1</td>
<td>800</td>
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**Total** 20,000
Work Breakdown Structure

Phase 2

Infrastructure
- HR
- Marketing
- SW
- HW

Marketing Research
- Product
- Price
- Placement
- Promotions

Testing
- Alpha
- Beta

Potential Investors
- Restaurants
- Banks
## Budget

<table>
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<tr>
<th>Item</th>
<th>Cost</th>
<th>Overhead (40%)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hard</td>
<td>$20,000</td>
<td>N/A</td>
<td>$20,000</td>
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<tr>
<td>Staff</td>
<td>$219,370</td>
<td>$87,750</td>
<td>$307,120</td>
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<tr>
<td><strong>Total</strong></td>
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<td></td>
<td><strong>$327,120</strong></td>
</tr>
</tbody>
</table>

- **Infrastructure**: $63,800.00
- **Marketing Research**: $49,900.00
- **Testing**: $80,410.00
- **Potential Investors**: $25,260.00
Phase 3
SRSB
## Staff and Resources

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>Alexander Caulkins</td>
<td>Project Manager</td>
<td>$89K/y</td>
<td>25</td>
<td>8,720</td>
</tr>
<tr>
<td>Brian Terible</td>
<td>Documents and Finance</td>
<td>$58K/y</td>
<td>53</td>
<td>11,820</td>
</tr>
<tr>
<td>David Harris</td>
<td>Marketing and Support</td>
<td>$87K/y</td>
<td>172</td>
<td>54,710</td>
</tr>
<tr>
<td>Matthew Crainer</td>
<td>Hardware Engineer Manager</td>
<td>$73K/y</td>
<td>31</td>
<td>8,700</td>
</tr>
<tr>
<td>Patrick Bourque</td>
<td>Software Engineer Manager</td>
<td>$81K/y</td>
<td>29</td>
<td>9,030</td>
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<tr>
<td>Technical Writer</td>
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<td>$53K/y</td>
<td>35</td>
<td>7,130</td>
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<tr>
<td>Corporate Lawyer</td>
<td></td>
<td>$116K/y</td>
<td>23</td>
<td>10,000</td>
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<tr>
<td>Phone Tech</td>
<td></td>
<td>$37K/y</td>
<td>21</td>
<td>3,000</td>
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<tr>
<td>Assembly Worker</td>
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<td>$29K/y</td>
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<td>2,300</td>
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<tr>
<td>Advertising</td>
<td>Roll up of TV and Internet costs</td>
<td>$138/day</td>
<td>90*</td>
<td>6,500</td>
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</table>

**Total**: 124,900

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</thead>
<tbody>
<tr>
<td>Web Server</td>
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<td>2,500</td>
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<td>2,500</td>
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<tr>
<td>Cost to make CDs</td>
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<td>0.26</td>
<td>10,000</td>
<td>2,600</td>
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<tr>
<td>TV Production</td>
<td>Roll up of all involved</td>
<td>1,000</td>
<td>1</td>
<td>1,000</td>
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</table>

**Total**: 6,100
Phase 3

Production:
- Build optimized version
- Create CD
- Create Package
- Finalize website
- Setup Phone System

Marketing:
- Retail
- Internet
- TV

Documents:
- End user contracts
- Manual

Sell:
- Upload
- Setup store back end
- Product online
- Send to stores
- Product on shelf
- Product launch event

Production to implementation:
- Analyze project
- Disband the extras

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## Budget

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<tr>
<td>Hard</td>
<td>$6,100</td>
<td>N/A</td>
<td>$6,100</td>
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<tr>
<td>Staff</td>
<td>$124,900</td>
<td>$49,950</td>
<td>$174,850</td>
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</table>

**Total** $18,0950

- **Production** $33,290.00
- **Marketing** $27,880.00
- **Documents** $1,490.00
- **SELL** $65,800.00
Total Cost = $ 586,300

Phase 1: $327,120
Phase 2: $180,950
Phase 3: $78,230
• We want your money

• We solve a problem

• We have the plan and the team to do it

• RED AI is the future of restaurants
• http://www.cs.odu.edu/~cpi/cpi-f2007/redai
Thank You

Restaurant Efficiency Decision Artificial Intelligence