Robotics Automation Project Sample Proposal

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Dear Mr. Macomber,

As requested, I am submitting this proposal to automate our manufacturing facilities by introducing industrial robots.

I have consulted in general with several robotic experts to develop the information I've enclosed here, and I believe the path is clear for us: if RoadVision Systems, Inc. wants to stay competitive and profitable, we must modernize ASAP.

Our competitors in Germany and China are introducing more automated processes to increase their production capacity, and if we don't act soon, we will lose the majority of our market share for automotive mirrors and backup cameras, and be left only with orders for specialty items. For the sake of our workers and our shareholders, we cannot let that happen.

To proceed, we need to include more staff members in the discussion, and we need to bring in robotics consultants to study our manufacturing processes and recommend specific machines for us to purchase. Then, with that action plan in place, we need to schedule time for installation and training, and hire or retrain the employees we need to run and maintain the machines. This will be a major change for our company, but we cannot afford to stay the course we are on right now.

Please review the information I've included in the following pages and let's schedule a meeting to discuss this soon.

Sincerely,

Lisa Wilcox
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Automation of Manufacturing Facilities through Introduction of Industrial Robots

Prepared for: Carl Macomber
CEO

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Executive Summary

RoadVision Systems, Inc. wants to remain competitive in our market niche and expand our manufacturing capabilities. In order to do that, we need to modernize our facilities and include robotics for better automation.

The Objective...

We need to reduce manufacturing costs while expanding our capabilities. We need to:

- Expand manufacturing hours: More fully automated factories in other countries have the ability to turn out products 24 hours a day, 7 days a week.

- Reduce repetitive motion injuries on the manufacturing line: While it is the most efficient to have an employee do the same job at the same station, our largest medical costs are due to injuries caused by repeating the same motions all day long.

- Increase manufacturing and packaging speeds: At times we experience bottlenecks when one part of the assembly line cannot match the speed of another.

The Opportunity...

We are at a crucial point in the company’s development where we must modernize or risk losing business. We want to meet the following goals:

- Goal #1: Keep our manufacturing facilities in the United States.

- Goal #2: Retain or even increase the number of employees.

- Goal #3: Compete or beat manufacturers overseas.
The Solution...

The only way to modernize our processes is to introduce more industrial robots. Robotics are already used in our mirror cutting systems. It’s time to use them in other areas.

- **Recommendation #1**: Use robots instead of assembly line workers to assemble our most commonly produced mirrors.

- **Recommendation #2**: Use robots for quality control where possible.

- **Recommendation #3**: Use robots to package all products coming off the assembly line.

Summary

Introducing more robots into our manufacturing processes is the key to success.
The idea of robots taking over has long been a nightmare of American workers. But the fact is that industrial robots have taken over many manufacturing jobs, and no human workers can match their speed and efficiency at performing repetitive tasks.

Consider the following points:

- **Automation will make our company more competitive on a global basis**
  
  Companies overseas are quickly automating their processes with robotics. We have to keep up.

- **Robots can work 24 hours a day, 7 days a week**
  
  We can produce more products.

- **Robots produce greater volumes of products faster**
  
  We can compete for larger orders.

- **Robots can reduce our expenses**
  
  Robots don’t need lights or climate control, and they don’t get injured by repeating the same motions thousands of times per day. We’ll reduce both utility bills and medical expenses.

**Summary**

Robots will replace some assembly line workers, but we can retrain some to program and supervise the robots, and we can increase our sales and design staff to take advantage of new capabilities.
Goals and Objectives

By automating the manufacturing processes of RoadVision Systems, Inc., we strive to achieve all the following goals:

- **Increase productivity**
  
  We must be able to produce larger orders faster to compete with overseas competitors.

- **Reduce costs**
  
  Employee benefits are our largest expenses right now. Robots don’t take holidays, vacation, or sick days, and don’t become injured or disabled.

- **Quickly achieve return on investment (ROI)**
  
  The ability to produce our products more efficiently while reducing operating costs should offset the cost of installing robots within two years and increase profits for the foreseeable future.

- **Keep our company and our jobs in the United States**
  
  We have always taken pride in being owned and grown in the USA, and we want to keep it that way.

Summary

Automating through robotics is not just one option, it’s our only option.
Benefits

RoadVision Systems, Inc. will receive many benefits from automating the majority of our manufacturing processes. These benefits include:

- The ability to compete more effectively in a global market

  Many overseas competitors, especially those in China and Germany, are using industrial robots to produce products quickly and inexpensively. We must keep up with the industry to land contracts.

- Reduction of labor costs

  While we hope to retrain some manufacturing staff to work with the robots and plan to hire more expensive staff such as designers and programmers, overall we can expect to reduce costs of benefits such as vacation, sick leave, and health insurance which we now pay to our workers at times they are not producing. Robots don’t get benefits and don’t expect raises and bonuses.

- The ability to bid on larger contracts

  Currently, we can bid only on contracts we know that our limited facilities and personnel can produce within the designated time frame. With increased automation, we should be able to run 24 hours a day, 7 days a week when needed, producing far more products than we can now.

- Establish our reputation as a state-of-the-art facility

  Automated facilities are cleaner and more energy efficient, and thereby “greener” than employing a large workforce that commutes every day. We will be able to advertise our company as modern, efficient, and innovative, which should attract new customers.

Summary

As you can see, the benefits we would receive from automation match the goals we have for our company.
Challenges

We recognize that we will face certain challenges during the course of automating our manufacturing facilities. Some of these challenges are:

- **Precisely identifying which jobs robots can do and what those robots will cost**
  
  We will work with consultants on this process, but management will need to factor time into their schedules to make this happen.

- **Cost of purchasing and installing robots**
  
  As robots should pay for themselves within two or three years, this issue can be resolved with a short-term business loan.

- **Downtime while robots are installed and staff adjusts to working with them**
  
  We must figure sufficient time into our schedule to make this happen with no impact to our customers.

- **Pushback from employees**
  
  Some employees on our manufacturing line will be laid off. We must determine how much headcount we will need after robots are installed, detail exactly which new jobs will be created, and determine if we can retrain some manufacturing staff or need to hire new staff. HR and managers will need to work closely together to handle all these staff issues in a humane, diplomatic fashion.

Automating our manufacturing processes will be a major change for RoadVision Systems, Inc., but if we want to remain in business in the future, we must embrace the possibilities and meet this challenge.
Overall, productivity in the United States has increased over the past decade, and our factory is no exception. We’re proud of all the innovations we have introduced, but we can increase productivity even more through automation.

Analysis of Current Productivity

We have increased our productivity by 5-10% each of the last three years through more efficient scheduling and packaging, and by replacing glass-cutting workers with computerized laser machines to cut glass for our automotive mirror products. Our slowest manufacturing areas are assembly of rearview and side mirrors, and packaging products for shipping.

We have polled our manufacturing supervisors and workers, and nobody has any good ideas about how we can increase productivity using our existing facilities and personnel. RoadVision Systems, Inc. is now producing at 100% of current capability.

Recommendations

Only one idea worth considering emerged from our poll on how to increase productivity: to decrease the variety of items we manufacture and thus devote more time to increasing the volume of those limited items we produce. However, it’s always risky to depend on very few clients; if the companies we were contracting with suddenly moved their manufacturing elsewhere or went out of business, we’d have no remaining developed client base to draw from.

However, by introducing more automation with industrial robots, we can produce a greater volume of each product in the same time frame, using our current facilities. We could then maintain the variety of contracts we accept or even increase the numbers of products we manufacture, while increasing the output of each product at the same time.

Robots can be programmed to assemble our rearview and side mirrors as well as our back-up cameras, and robots can also efficiently package our products and stack them on pallets. Robots can also do initial quality control scans and direct suspected problems to a human employee for solutions.

More automation is the key to improved productivity for our company.
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