Request for Proposal

ptimistic Inc.

Autonomous Vision-Aided Vehicle Prototype

Company name: Optimistic Inc.

Address: 3456 Maiden Road, Burnaby BC, V3C 7H9

Contact name: John smith

Phone: 778-123-4567

Email: [jsmith@gmail.com](mailto:jsmith@gmail.com)

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# **Summary and Background**

Optimistic Inc. was established in 1984. They help with the Centre for Emergency Preparedness and Response (CEPR) agency of Canada. Optimistic Inc. works with the CEPR to design new technology for search and rescue operations and work with the Office of Laboratory Security and Office of Emergency Response Services.

Optimistic Inc. is accepting proposals to develop an autonomous vision-aided vehicle prototype. The prototype will help with search and rescue missions during natural disasters in places that pose potential hazardous risks such as wildfires, earthquakes, collapsed buildings etc.

# **Project Description**

The current problem for the CEPR is after natural disasters they must risk lives in order to save lives. This means they must send workers into dangerous situations to rescue people who have been harmed or trapped. CEPR has asked Optimistic Inc. to develop a vision-aided autonomous vehicle to do this job instead of risking the lives of the workers of CEPR.

The project involves designing and building an autonomous mobile robot that is capable of

* using a vision system to track and find its target
* picking up and placing loads of 1 kilogram maximum
* avoiding obstacles on its way to the target and back to a specific location
* handling diverse terrain.

# **Project Scope**

The following section describes our project scope in detail.

## **Software**

The prototype will use a Robot Operating System (ROS) which can use any open source libraries for its vision guidance system. The prototype can use any of the following programming languages; Python, C++, C, Java.

## **Hardware**

The prototype can use

* any general purpose, small single-board computer (such as a Raspberry Pi) with an IOS to run the vision system program.
* ultrasonic sensors with a range of 10cm
* colour camera for vision system.

# **Proposal Evaluation**

Preference is given to bidders with at least the following qualifications:

* Electrical or mechanical diploma
* 1 year experience/training in technical area
* Structured and well thought out plan for the design and execution of the required tasks
* Least proposed budget

# **Progress Reports**

Chosen bidders will have to meet with representatives from Optimistic Inc. and the CEPR to answer a few questions such as:

* What was accomplished this week?
* What is the plan for next week?
* What new problems were identified and how will they be resolved?

# **Submission Details**

All proposals in response to this RFP are due no later than January 17, 2019 at 5pm. All proposals will be evaluated, and the results of the evaluation will be given on January 20, 2019.

**Optimistic Inc.**

**3456 Maiden Road**

**Burnaby BC, V3C 7H9**