



Semi-autonomous or fully autonomous mowing application

Overview



At BotCrew, our cutting-edge technology offers semi-autonomous or fully autonomous lawn mowing solutions designed to meet the needs of highway ditch maintenance. With features that prioritize efficiency, safety, and precision, our robotic systems provide an innovative and cost-effective approach to maintaining Minnesota's highways.

Key Features for Fully Autonomous Lawn Mowing



1. Extended Runtime

- **Up to 48 Hours of Continuous Operation:** Our robots are equipped with advanced power systems and a 23-gallon diesel tank, allowing for uninterrupted operation over extended periods.

2. Landscape Surveying with Drones

- **Advanced Surveying Capabilities:** Drones can survey the highway ditches to create detailed topographical maps.
- **Preset Boundaries:** Surveyed data includes precise boundaries to ensure accurate and efficient mowing operations.

3. Deployment of Surveyed Maps

- **Seamless Integration:** Upload surveyed maps directly to the robots, ensuring precise mowing within the designated areas.
- **Boundary Awareness:** Robots adhere strictly to preset boundaries to maintain safety and avoid unintended areas.

4. Enhanced Mowing Capacity

- **Middle Mowing Deck:** The robot comes equipped with a middle mowing deck for efficient coverage.
- **Offset Outriggers:** Additional mowing capacity is provided by offset outriggers, ensuring thorough and precise mowing of highway ditches.

Key Features for Fully Autonomous Lawn Mowing



5. Custom Alerts and Notifications

- **Obstacle Alerts:** Detect and report large objects, such as cars, boulders, or broken guardrails.
- **Custom Notifications:** Alerts can be sent directly via email or text to designated MN DOT personnel, ensuring quick responses.

6. Centralized Piloting Center

- **MN DOT Piloting Center:** Optional centralized control allows MN DOT employees to oversee and pilot the equipment.
- **Dual Mode Operation:** Robots can operate in:
 - **Fully Autonomous Mode:** Minimal intervention required, only responding to alerts.
 - **Piloting Mode:** Allows MN DOT employees to take direct control when necessary.

7. Obstacle Avoidance Technology

- **Advanced Sensors:** Equipped with 3D LiDAR and up to 18 depth cameras for real-time obstacle detection.
- **Dynamic Navigation:** Robots navigate around obstacles while maintaining efficiency and safety.

Benefits for MN DOT



- **Increased Efficiency:** Reduced time and labor for highway ditch maintenance.
- **Enhanced Safety:** Minimizes risks for MN DOT employees by automating hazardous tasks.
- **Cost-Effective Operations:** Optimizes resources by using autonomous systems for routine mowing.
- **Customizable Solutions:** Alerts and piloting options tailored to MN DOT's specific needs.

Videos Of BotCrew Utility Robot



<https://youtu.be/-3yAigDmyOA>



Conclusion



BotCrew's semi-autonomous or fully autonomous lawn mowing solution is designed to transform highway ditch maintenance. By combining cutting-edge technology, extended runtime, and advanced safety features, we provide MN DOT with a reliable and innovative approach to maintaining Minnesota's highways.

Let's work together to make highway maintenance safer, smarter, and more efficient!