

# **Zero-turn Mowers – A New Era**

**(Updated February 2017)**

**What if Zero-turn mowers  
did not tear the turf?**

# **Zero-turn Mowers – A New Era**

## **Overview**

- **Current Concerns**
- **New Design Advantages**
- **The Concept**
- **Status**
- **Summary**

# **Current Concerns**

# **Zero-turn Mowers – Current Concerns**

- **One wheel spins (damages turf)**
  - Side hills
  - Wet grass
  - Turns
- **One wheel pivots on turns (damages turf)**
- **Side-to-side speed mismatch**

# **New Design Advantages**

# New Design Advantages

- **Functional advantages**
- **Commercial advantages**
- **Open-ended opportunity**

# New Design Advantages

- **Functional advantages**
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# **New Design Advantages**

## **Functional Advantages**

- **One wheel spins only if both spin**
  - **No one-side wheel breakaway**
- **Simple zero-turn without wheel pivot**
- **Side-to-side speed matched**
  - **No factory adjustment**
  - **No deterioration over vehicle life**
  - **Simpler straight-line mowing**
- **Reduced cost parking brake options**



# New Design Advantages

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- **Commercial advantages**
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# **New Design Advantages**

## **Commercial Advantages**

- **Radical – yet simple – new innovation**
- **Currently no direct competition**
- **Greatly reduces learning curve to operate**
- **Facilitates migration from front-engine lawn tractors**
  - **Huge potential**
- **Cost delta may be zero (or even negative)**

# New Design Advantages

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- **Open-ended opportunity**

# **New Design Advantages**

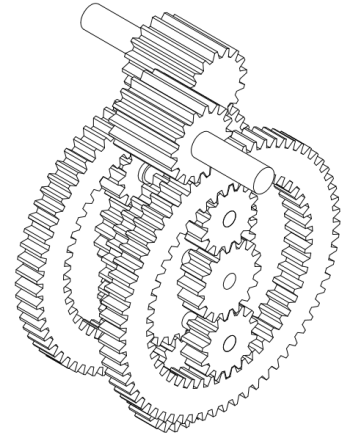
## **Open-ended Opportunity**

- **Totally new operator interface options**
- **Easily adaptable to mixed technologies**
  - **Hydrostatic and electrical**
- **Biggest differentiator since Zero-turn mowers**

# The Concept

# The Concept

- **Uses two planetary gear sets**
- **Gear sets are interconnected**
- **One drive input propels vehicle**
- **One drive input steers vehicle**
- **Outputs (wheels) are totally controlled by inputs (no wheel break-away)**
- **Hybrid option (hydrostatic for power & electric for steer) for ultimate design**



# Status

# **Status**

- **Document the concept – done**
- **Build working model – done**
- **File utility patent - done**
  - **Two patents granted**
- **Design gearbox for mower prototype – done**
- **Build gearbox – in process**
  - **All gears, shafts, spacers, & bearings procured**
- **Build concept vehicle – in process**
- **Present concept to mower manufacturers – tbd in 2017**



# Status



**Prototype mock-up with the on-purpose gears**

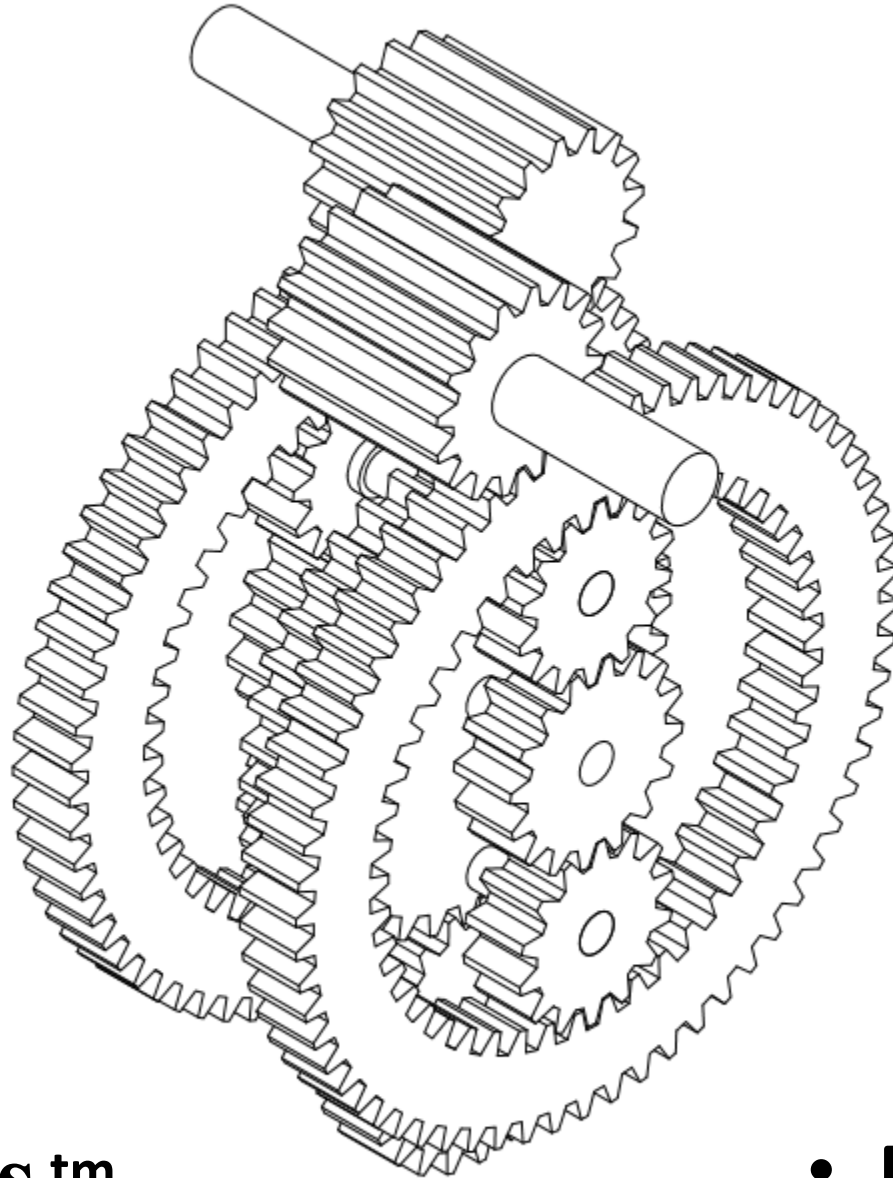
# Summary

# Summary

- **“Game-changer” in a “me too” market**
- **Differentiated product**
- **Premier product**
- **Major performance advantages**
- **Open-ended control opportunities**
- **The market is overdue for a major change**
  - **This is it!**

**What if zero-turn mowers did  
not tear the turf?**

**That would be “Maddness<sup>tm</sup>”**



**Maddness<sup>™</sup>**

• **Patented**