



# Instrumentation and Data Collection of a Debaler



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## Introduction

Baled materials are commonly used as a feedstock for biofuels or other bio-based products. The industry needs a machine that takes the bales and returns them to loose material.



Previous Prototype



Existing Prototype



## Current Design Ideas

- Add paneling around debaler head and connect it to the chute to ensure that all loose material flows the chute
- Install a door into the paneling to allow the operator to access the turnbuckle

## Plan

- Construct box to surround debaler head that ties into material chute
- Move motor mount for hay elevator motor
- Build new motor mount for debaler head motor
- Construct sheet metal enclosure for the electronics
- Wire all electronics
- Code and implement automation logic trees:
  - Bale jamming
- Final material testing

This project, UI Debalers 2.0, is a continuation of a previous capstone project. That team, the UI Debalers, built the prototype seen to the right, that our team inherited. The existing machine is comprised of a manual infeed table, a debaling head, and an outfeed chute.

## Objective

The objective of our project is to improve the current debaler prototype by making the system fully automated. Meaning a person loads a bale and machine takes it and debales without any further human interaction. We also need to incorporate a working control algorithm to sense bale jamming and chute clogs.

## Project Goals

- Improve prototype chute
- Modify head
- Full automation
- Control algorithms



## References:

UI Debalers Design Report:  
[http://mindworks.shoutwiki.com/wiki/Debaling\\_Agricultural\\_Materials](http://mindworks.shoutwiki.com/wiki/Debaling_Agricultural_Materials)







