# MICHIGAN STATE UNIVERSITY Project Plan Online Moving Estimator The Capstone Experience

#### Team Two Men And A Truck

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From Students... ...to Professionals

#### **Functional Specifications**

- Portal for customer service representatives (CSR) to manage sessions and enter data
- Integrated video chat service for online estimate
- Companion mobile app for ease of use
- Classifying objects for general estimate

#### **Design Specifications**

- Conforms to TMAAT brand standards
- Two different interfaces for Customer and CSR
- Customer can select video chat or image recognition
- CSRs can mark themselves available for video chat, create appointments and initiate video chats
- On mobile app, users can take a picture and be presented the furniture detected as well as the total cost.

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	Select an option to reciev Video Call with CSR Video chat with a customer service representative or schedule an appointment	Automatic Recognition Use our mobile app to point your camera at items you would like moved to generate your quote automatically. This method is quicker but has a less accurate estimate

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	Schedule Appointment	

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TWO MEN AND A TRUCK. Movers Who Care."	Customer Portal	
	Start Video Chat	George Johnson

The Capstone Experience



#### Screen Mockup: Phone Interface



### Screen Mockup: Phone Interface



#### **Technical Specifications**

- Peer-to-peer communication between clients via WebRTC / PHP Ratchet signaling.
- Image recognition using YOLO real-time object detection and end-user's camera/hardware.
- Compatibility with Two Men and a Truck's existing estimation algorithm.
- Using PHP/JavaScript for eventual portability between development and production environments.

## System Architecture



Two Men and a Truck Online Moving Estimator System Architecture

#### System Components

- Hardware Platforms
  - Artic
  - AWS
- Software Platforms / Technologies
  - WebRTC for video and text chat
  - PHP/JavaScript, PHPStorm
  - Yolo2 for object recognition
  - ScaleDrone for signaling server
  - PHPMyAdmin for SQL Server

#### Testing

- Cross-Browser Testing
- Unit Tests
  PHPUnit
- Field tests
  - Ask a TMAAT CSR to test the software

#### Risks

- Video Conferencing
  - No team member has experience with webRTC or video conferencing
  - Figured out text chat, already sourced useful tutorials
- Recognizing Volume Based on Image Classification
  - Don't know if estimate will be accurate
  - Sourced examples of a similar process with food density on a plate
- Writing a Signaling Server
  - No team member has experience with this
  - Sourced libraries and tutorials, already set up with a 3rd party service

#### **Questions?**

