Project Plan
2020 Business in a Box
The Capstone Experience
Team DRIVEN-4

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Functional Specifications

• Showcase for future IoT-driven business environment
• Create a use case for product that contains an accelerometer and is connected through Wi-Fi
• Show manufacturing process for creating the product
• Visualize product service using AR technology
• Visualize product and its parts for engineers
Design Specifications

• Connect Devices via IoT Technologies
• Develop Visualizations Using ThingWorx
• Design the Product Using CREO & NX
• Factory Simulation
• Develop Use Case: Baby Sleep Cycle Monitor
• iOS Application
Screen Mockup: Manufacturing
Screen Mockup: Mobile Application
Screen Mockup: AR Service
Technical Specifications

- **ThingWorx** – Manufacturing & IoT Visualization
- **CREO & NX** – Physical Product Design
- **Photon** – IoT Hardware
- **Accelerometer** – Temperature Detection & Motion Detection
- **Tecnomatix** – Manufacturing Design & Simulation
System Architecture

- **Tecnomatix**: Produce
- **THE BOX**: Stream
- **Applications**: Particle
- **Cloud**: Visualize
- **thingworx studio**
System Components

• Hardware Platforms
  ▪ Photon
  ▪ Accelerometer

• Software Platforms / Technologies
  ▪ ThingWorx 8
  ▪ ThingWorx Studio
  ▪ NX & CREO
  ▪ Tecnomatix
  ▪ Particle Cloud
Risks

• **Incorporation of ThingWorx AR with iOS App**
  - Cannot ask users to download ThingWorx and a mobile application, would hurt user experience.
  - Mitigation: Research and test ThingWorx and ARKit integration.

• **Sensor Data Calibration**
  - Determination of notable thresholds to analyze human sleep patterns.
  - Mitigation: Determine sensor sensitivity to reduce false positives and accurately interpret collected data.

• **Time Management**
  - Several time-intensive sections, cannot spend too much time on mobile application since visualizations are the core aspect of project.
  - Mitigation: Achieve minimum viable product for application, add more functionalities as necessary. Focus on IoT connectivity.

• **Single & Multiple User Device Registration**
  - Users must be able to register multiple boxes in multiple beds, and we need to sync all data from mobile app.
  - Mitigation: Test multiple scenarios for user-to-box registration. After testing iterations, additional user inputs added to the setup process on application.
Questions?