Project Plan Presentation
Technology Driven Inventory Optimization

The Capstone Experience

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Project Sponsor Overview

• Stryker
  ▪ Multinational medical technology and manufacturing company
  ▪ Deploys surgical kits and other devices nationwide
    o Many stakeholders
Project Functional Specifications

• Technology Driven Inventory Optimization
  ▪ Real-time inventory tracking

• Change of Hands
  ▪ Stryker
  ▪ Agency
  ▪ Representative

• Business Risk Associated with Inaccurate Inventory
Project Design Specifications

• Supply Chain Dashboard
  ▪ Interactive dashboard with the filters requested by the client which will be implemented into the Web Application.
  ▪ Dashboard has two pages.
    o Monthly
    o Daily

• Web Application
  ▪ Web Application created to give access to three roles each with a different layout depending on the login provided.
    o Stryker (Manufacturer), Agency, Representative

• Sensor
  ▪ Sensor to provide geo-location of the medical cases that are being sent from Stryker to the agency/rep.
Interactive Dashboard (Monthly)
Interactive Dashboard (Daily)
Web Application Layout
Web Application Layout
Web Application Layout
Mobile App Layout
Project Technical Specifications

• Cloud Platform
  ▪ Amazon Web Services
    ○ Amazon Managed Blockchain
      ❖ Hyperledger Fabric Blockchain
    ○ Amazon S3

• Dashboard
  ▪ Power BI

• Web Application
  ▪ React JS

• Mobile Application
  ▪ React Native
Project System Architecture

The diagram illustrates the architecture of the project system. It includes a Mobile App built with React Native, a Web App using React.js and Power BI Dashboard, and connections to AWS Cloud via VPCs for Stryker, Agency, Rep, Amazon Managed Blockchain, Hyperledger Fabric, Amazon S3, and IoT with a GPS Sensor.
Project System Components

• Hardware Platforms
  ▪ Geolocation Tracker

• Software Platforms / Technologies
  ▪ Power BI
  ▪ AWS (Blockchain)
  ▪ Visual Studio (ReactJS, React Native)
Project Risks

- Sanitization Destroying Sensors
  - Autoclaves put packages through conditions that have destroyed every sensor tested so far
  - Testing at local hospital
- Connecting to AWS
  - Data is stored in AWS cloud and needs to be accessed
  - Test connection points that satisfy privacy requirements
- Harnessing GPS Data
  - Many GPS devices only support their service, not a custom one
  - Filter research, possible middle-man API
- GPS Pinging Frequency
  - Ping sensors at rate that provides up-to-date information while saving battery life
  - Analyze kit movement patterns
Questions?