Project Plan Presentation
Recovery of Lost or Stolen IT Assets

The Capstone Experience
Team General Motors (GM)

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Project Sponsor Overview

• GM was founded by William C. Durant
• Parent company of Cadillac, GMC, Buick, etc.
• Invented PCV valve, Electrovolair, first to use unleaded gas, etc
• Over 165,000 employees worldwide
Project Functional Specifications

• A platform to secure stolen or lost GM assets
• GM’s current iteration vs Our solution
• Our goal: To expand and automate the process
• Two types of lockdowns: Instantaneous and Timed
• Automate confirmation and status emails
• Read-Access permission to the IT support staff
Project Design Specifications

• Two types of roles
  ▪ Read access for general users
  ▪ Full functionality for admins
• Allows for admins to remotely lock GM computers
• Easy to use desktop software application
• Usable on Windows, MacOS, and Ubuntu
Screen Mockup: User Interface
Screen Mockup: User Search

The Search interface includes fields for Employee ID, First Name, and Last Name. The Results section displays a list of employees with their statuses: Locked - Unknown, Unlocked - Known, and Unlocked - Unknown. The first employee in the list is Tim Rogers with a status of Locked - Unknown.
Screen Mockup: Admin Interface
Screen Mockup: Admin Lock
Screen Mockup: Country Lock
Project System Architecture
Project Technical Specifications

- Docker
- Flask Micro-Framework with Python
- PowerShell
- Electron framework
- PostgreSQL
Project System Components

• Hardware Platforms
  ▪ Ubuntu Server
  ▪ Microsoft Azure

• Software Platforms / Technologies
  ▪ Docker
  ▪ Flask with Python and PowerShell
  ▪ Electron with HTML, CSS, and JS
  ▪ PostgreSQL
Project Risks

• Scalability
  ▪ Need our system to handle 10,000+ lockdown requests simultaneously
  ▪ Test robustness with SQLAlchemy to emulate large numbers of queries

• Azure Integration
  ▪ Need to integrate Azure to send digest emails detailing computer status
  ▪ Write test scripts to send automated emails and digests

• Lockdown Initiation
  ▪ We need to be able to lockdown a client computer and prevent access
  ▪ Run test scripts on virtual machines to verify lockout status

• Reliability
  ▪ Need to prevent common bypasses and attempts for unauthorized users to gain access
  ▪ Test bypass options as well as disabling network and extra input ports
Questions?