Geospatial Technology for Smarter Project Management

Unmanned Aerial Vehicles (UAVs)

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Outline

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Introduction

- Gayatri Projects Ltd.
- One of India’s top Construction and Infrastructure players:
  - EPC (roads, irrigation, industrial)
  - Highways (8 Toll & Annuity assets)
  - Power Plants (2640 MW complex)
Industry Problems

- Primitive project management techniques
- Lack of transparency and no access to timely project data
- Pilferage and misuse of materials and machinery
  - >60% of project cost goes towards raw materials
- Projects located in remote places
- Any mismanagement can lead to losses in the millions
Solution: UAVs?

- UAVs one of the best data capture methods
- Capture detailed visual data from Cameras, LiDAR etc.
- Can capture real-time status of work and stock-piles
- Can examine construction quality
Case Studies

- Surveying of Work-done and stock-piles
- Automation of machinery
- Vehicle tracking

Kespry & NVIDIA

Skycatch & Komatsu
Roadblocks

- Human intervention required
- Low willingness to adopt new technologies on site – additional work load
- Vested interests for some
- Difficulty in training and operations
- Value prop not clear – if BIM not being used
Proposed Solution

- Autonomous drone system – auto charging and data upload
- Auto surveying of work recorded in Daily Progress Reports
- Linking to CAD/BIM models and ERP software
Tech Improvements Required

- Fully Autonomous navigation
- Collision avoidance systems
- Auto charging or battery swapping
- Improved battery life
Conclusion

• Technology fast improving
• Industry also becoming more tech savvy
• Value proposition improves when construction companies become more sophisticated:
  – BIM
  – ERP