Smart Cities Ecosystems
TDG (The Digit Group)
Smart Cities Development
Design | Construction | Operations
Innovation Development and Delivery
Housing | Transportation | Technology | Energy | Media

Forbes
“Changing The World”
July 2018

CNBC
“An American Business Titan”
November 2017

Bloomberg
“Global Leader”
November 2017
The Digit Group (TDG) plans, designs, builds, and manufactures holistic smart cities, using technology solutions as the basis of its designs. From the tallest of buildings to the smallest of villages, TDG creates smart cities solutions that provide greater security, increased safety, lower energy use, more efficient water management, safe and comfortable transportation, and a better urban experience. Its smart cities solutions have been implemented in China, Southeast Asia, India, the Middle East, Europe, and throughout the U.S. TDG discovers innovations, mixes these innovations together like ingredients, to create unique experiences, like recipes, for both greenfield Smart Cities and existing urban environments.
Art of the Possible
A Smart City is not a marketing campaign, a slick sales technique nor an amusing political catch phrase.

It is a series of solutions to a serious and urgent situation the world faces today.

Smart Cities are emerging as a civic action due to a “perfect storm” of the convergence of market conditions, technology innovation, social wants and government needs and the migration to urban environments that has accelerated on a global scale that dwarfs any previous mass movement of people in history.
United Nations Sustainable Development Goals

1. No Poverty
2. Zero Hunger
3. Good Health and Well-being
4. Quality Education
5. Gender Equality
6. Clean Water and Sanitation
7. Affordable and Clean Energy
8. Decent Work and Economic Growth
9. Industry, Innovation, and Infrastructure
10. Reduced Inequalities
11. Sustainable Cities and Communities
12. Responsible Consumption and Production
13. Climate Action
14. Life Below Water
15. Life on Land
16. Peace, Justice, and Strong Institutions
17. Partnerships for the Goals
Innovation Ecosystems
Piezoelectric material sits underneath floor finishes like carpet, ceramic tile, wood, etc.

Piezoelectric is a Kinetic Energy solution that:
- **Generates** power from compression
- **Stores and harvests** this power in a Graphene Battery
- **Distributes** this power through wireless charging
- **Captures and reports data** of the exact location of the generated power dynamically
Kinetic Energy
Piezoelectric

Atlanta Hartsfield Airport:
Piezo Selfie Station

NASA Kennedy Space Center Visitors Complex:
Piezo Universe

Mercedes Benz Stadium (Atlanta):
Concourse and Playing Field Installation
Transportation
Branded Autonomous Electric Buses

**NextGen Bus**

- EV/AV LED Bus
- Piezoelectric / Wireless Charging
- Bus Stop Sub-Station
- Street Lighting
Central BIM Office

Data Management / Project Control

BIM information coordination, management and project delivery

Data Classification System

Digital DNA

Blockchain

Machine Learning / AI

Internet of Things / Sensor Management

Smart Cities
The Gemini Principles

**Purpose:**
Must have clear purpose

- **Public good**
  Must be used to deliver genuine public benefit in perpetuity

- **Value creation**
  Must enable value creation and performance improvement

- **Insight**
  Must provide determinable insight into the built environment

**Trust:**
Must be trustworthy

- **Security**
  Must enable security and be secure itself

- **Openness**
  Must be as open as possible

- **Quality**
  Must be built on data of an appropriate quality

**Function:**
Must function effectively

- **Federation**
  Must be based on a standard connected environment

- **Curation**
  Must have clear ownership, governance and regulation

- **Evolution**
  Must be able to adapt as technology and society evolve

**Diagram:**
- **Decision-making**
  - Improved decisions

- **Data management**
  - Improved insight

- **Data quality**
  - Decreasing data volume, increasing data value

- **Data analytics**
  - Data mining

- **Machine learning**
  - Collaborative algorithms

- **Big data analysis**
  - Real-time visualization

- **Decision support tools**
  - Machine learning

**Data types:**
- SCADA systems
- Customer billing
- GPS
- Telematics
- Social media
- Survey
- Remote surveys
- License imagery
- GIS & BIM
- Manufacturers' data
- CCTV
- Smart grid
- Control systems
ORBI

City Operating System

“Digital Twin”

GENIUS PLATFORM
Smart Cities Ecosystem Projects
Greenfield Smart City
Jeddah, Saudi Arabia
Jeddah Economic City

Tower

Energy

Transportation

Safety

Security

Quality of Life
Autonomous Public Transportation
Nashville, Tennessee
NextGEN Bus
**NextGEN Bus Storyboard**

**TDG AV Bus 2.0**

**Bus Stop Station**
- Excess Energy Sent into the Bus Stop and then Sold into the Power Grid Generating Revenues
- Solar Powered
- Mobile Device Charging
- WiFi Access
- LED Lighting
- Innovative Advertising/Branding Revenues

**Bus Vehicle**
- Autonomous Vehicle
- Less Batteries/Halo Wheel Well Installation
- Drive Train / Chassis
- LED Lighting (interior/exterior)
- Interior Design
- Innovative Advertising/Branding Revenues

**Street Lighting**
- Curb Installed LED Lighting
- No Dark Areas Along the Bus Route
- 10g LiFi Internet Access

**Piezoelectric / Wireless Charging**
- Road Surface Installation – Before/After Bus Stop
- Thin Film Piezoelectric on Inside of Bus Tires
- Qualcomm Halo Dynamic Wireless Charge During Boarding and Offloading Process from Bus to Bus Stop
Modular Housing Automation
Shanghai, China
Modular Housing

One Home Manufactured Every 7 Minutes

BIM to Fabrication to Installation in one week

Modular Fabrication Factory

Sustainable 2500 square foot house every 7 minutes with zero defects and zero waste
Competitive Advantages

- **Sustainable** 250 square meter homes manufactured every 7 minutes with zero defects and minimal waste
- Once at the site, each home is prepared for move in quality in 7 days
- Pre-arranged agreements with local officials streamline the delivery process
- **Technology Integration**: Technology is built into each home as a 4th Utility with Amazon’s Alexa being one point of integration.
- **House as a Platform**: With each house as a computer, TDG Housing technology standardization compliments an array of services to the home owner
- **Community as a Network**: Each TDG Housing home can be connected like a computer network providing a higher level of safety, security and quality of life, including economies of scale purchasing of products, goods and services
Virtual Reality Industrial Park
Qingdao, China
Qingdao International Virtual Reality Theme Park
Business Development
- VR Research & Development Laboratory
- VR Technology Incubator
- Retail / Commercial / Food & Beverage
- Smart Housing – Smart Hotels – Smart Health

Content Development (Studios)

Theme Park
LEARN! - INNOVATE! - EXPLORE!
eTravel - eSports - eCulture

Rides & Simulations:
Superstars – Sports, Music, Entertainers
Gaming – Individual/Multiplayer
Business Showcase
Convention / Conference Center
Arena
eSports Arena
Qingdao International Virtual Reality Theme Park
Data-driven, human-centric

Keep the bigger story in focus

Embrace the collision of industries

Do good for our world
Smart Cities Ecosystems

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www.thedigitgroup.com