TOWARDS UNIFIED TRAFFIC MANAGEMENT

DRONE SIGHTINGS, AIRSPACE SHUT DOWNS & UTM IMPLEMENTATION

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EXPONENT TECHNOLOGY SERVICES
Drone Sightings: Airspace Shutdowns

2015-2016

• Unverified Drone Sightings by Airline Pilots forced closures of Dubai Civilian Airspace 3 times within a span of 6 months
• Cost to the economy is USD $1 million / minute
• Negative publicity attributed to ‘ease of business’ in Aviation
• Drone sales on the rise - no clear guidelines in place for drone users
The Drivers

Dubai 2020
Regulation catching up with Innovation

EXPO 2020 & Beyond

- Dubai to have a functioning Aerial Taxi implemented through Expo 2020
- Accelerated adoption by key government departments: DEWA, RTA, DM
- Traffic Monitoring, Surveillance, Aerial Filming
- Private Sector Innovation: Food Deliveries, Medicine Delivery
PHASE 1: DRAFT REGULATION
Draft Regulation categorizing types of registration for RPAS/UAV usage & piloting: Hobbyist, Commercial, Government, Freelance, Professional

PHASE 2: USER & UAV REGISTRATION
Pilot & Drone Registration Initiative: Registration Cards Issued, RPAS/UAV Serial No. linked to Pilot

PHASE 3: FLIGHT APPROVAL SYSTEM
Implemented Pre-Flight Approval System for Commercial UAV/RPAS Flights

PHASE 4: LIVE TRACKING & MONITORING
GSM Based transponder to track & monitor all commercial UAV/RPAS operations in real-time.

PHASE 5: DETECTION
Cooperative vs Non-Cooperative RF Based Drone Detection - Integrated into overall UTM system

PHASE 6: UNIFIED TRAFFIC MANAGEMENT
Inclusion of other Aerial Activities into the UTM fold: Hot Air Balloons, Manned & Unmanned Aerial Taxis, Delivery Drones, etc.

UTM Implementation: Hitting the ground running.
PHASE 1

Issuance of Guidelines for RPAS/UAV Activity
Published No-Fly Zones

Draft Regulations & Guidelines 2016
PHASE 1
Network Based Transponder
Leveraging the GSM Infrastructure

MANDATED TRANSPONDER DEVICE 2016

SKYCOMMANDER 3.0
SKYCOMMANDER 2.0
A system for registering pilots and UAV’s has been setup, enabling all commercial activities to be submitted for pre-flight approval.

**Pilot & Drone Registration** 2016

**Flight Permission Applications** 2017
PHASE 4

GSM Based Tracking & Monitoring
Ensuring Minimum Horizontal & Vertical Separation from Commercial Civilian Air Traffic

Live Tracking & Monitoring 2017

Real-Time Breach Alerts 2017
PHASE 4
Real Time 3D Flight Visualisation
Live Flight Data
Communications Module
Live Flight View 2017
PHASE 4
Real Time Communications
Dynamic No Fly Zones

RTCM 2017
PHASE 5

Detection using long range RF Antennas
Detection Data Integrated into UTM System

Non-Cooperative Activity Detection 2018
Inclusions within UTM 1.0

GSM based tracking of Hot Air Balloons at 4000 ft.

Hot Air Balloons  April 2018
Jetman  October 2018
Extensions to UTM 1.0

Flight Data Analysis
Registration Data Analysis
Stakeholder Impact Analysis

Analytical UTM June 2018
Current Implementations

Dubai: Fully Implemented
Rome: Trial Commenced on 1st October 2018

Targeting 4 Metrowide Implementations April 2019
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