

Rapid Inventory Collection System (RICS)

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SUMMARY

A review of the methods employed to collect “buildings specific field data” following the impact of Severe Tropical Cyclone Larry (March 2006) resulted in a plan to build a vehicular mounted rapid data inventory collection system to complement post disaster surveys. The system assists to overcome the issues related to restricted access, poor weather and difficult working conditions. The ability to quickly collect comprehensive information to reduce assessment errors caused by rapid clearing of debris and temporary repairs following the disaster. This includes the use of tarpaulins, which often obscure the level of damage viewed from the street. The Rapid Inventory Collection System (RICS) consists of four 5 Megapixel Gigabit Ethernet digital cameras operating at approximately four frames per second. The high-resolution cameras, enclosed within all weather housings, are attached to an extendable aluminium tripod with either suction cup or magnetic “feet” which can be attached to a 4WD dual cab roof or tray. The cameras stream images that are captured via a five port Gigabit Ethernet switch supporting jumbo frames to reduce the CPU load required to handle incoming data to a Quad Core processor Laptop. The images are compressed in jpeg format “on-the-fly” and displayed in a Graphical User Interface (GUI) along with a GPS location, bearing and speed. An additional display window shows the street-directory (UBD) roadmap and a GPS tracklog. Hot keys for instant damage assessment marking location and damage levels have been programmed into the GUI. All images are time synchronised and stored in a geo-referenced database for spatial analysis to estimate the damage. This roving vehicular image inventory and damage assessment platform offers many time and cost saving benefits for more efficient and effective post disaster surveys. It can also be used for exposure data inventory collection, particularly building wall and facade information. The key benefits of RICS include: • complementing and augmenting the detailed field damage assessments (house-to-house, structure-to-structure) currently undertaken using hand-held personal data assistants (PDAs); • providing a quick “first-look” of the damage impact area to prioritise the worst-hit regions to be surveyed first; • allowing for 100% coverage of building damage in a disaster-affected area; • collecting data focusing on “population coverage”, and in disaster situations, quickly collecting information on undamaged structures allowing key engineering and GIS staff to focus on damaged structures; • allowing fieldwork to be undertaken more efficiently.