

A DRONE-BASED SYSTEM FOR SMALL-SCALE RICE FIELD MONITORING

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Abstract

In this article, we presented a progress in a JICA-JST funded project aiming at the development of spatial data driven rice monitoring. To date, we focus on the construction of the system capable to monitoring small-scale rice fields utilizing drones. Low cost Commercial Off the Shelf (COTS) drones was firstly evaluated to monitor rice fields. With the advent of more powerful drones, the application was expanded to study detailed characteristics of rice at different growth states. This information would serve as a background for further assessment of spaceborne remote sensing data. We found that haystacks left by the farmers were easily identified by multispectral imagers. Interestingly, it was discovered that contribution of thermal sensors to distinguish ripening and harvested growth classes were clear. The discovery certainly leads to a new insight in the “heat islands” in agricultural fields.

Keywords: drone, rice field, growth phase, agricultural heat islands