

Hawk-Eye[™] Systems

Thermal and Visual Image Data System for

Scouting Turf



& Prescribing Irrigation



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Hawk-Eye[™] System of Systems

Enables a real-time conversation with the turf





Hawk-Eye™ Thermal and Visual Image Data

Persistently, 24/7, Autonomously

Pattern Recognition for: Early ID of disease, pest, and water pressures drainage

Alerts to:

Loss of turf vigor High canopy temperatures High Stress events

Indices to Guide: Irrigation Player Safety Using Fans Grow Lights Turf Heating



Set it up. Durable and WeatherProof

Tell it what you want to know.

It is autonomously measuring the field(s) and the local weather.

It alerts you when the conditions you wanted to know about occurs.

Listen to the turf.

By exploiting the Internet of Things the Hawk-Eye[™] System enables plants to talk to turf managers, help target labor and actuate irrigation.







The Turf Imaging Spectrum







There are no boundaries when enthusiasm and excitement are applied to the task at hand.

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Computes Canopy Heat Indices & Variance of Color

Visualizes and Reports Actionable Results in Real-Time









Visual

Hue/Color



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Using the Visual Image Data



Track/Assess Vigor Water Quality Varietal Differences

Visual Index (VI) = Standard Deviation of the Canopy' Color

Measuring Vigor and Leaf Density

Calculated every time step of image data Averaged between solar noon - /+ 1hr

VI is the measure of QUALITY



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Using the Thermal Image Data

Measuring Temperature Infers Photosynthesis & Respiration











Persistence is Important

The thermal character (stress) of the turf changes minute-to-minute. Daily, weekly, monthly snapshots are not representative of the character of the turf.

Which Snapshot do you pick to do something?



Snapshots are misleading



Persistence IDs Winterkill before green-up



See the Movie @ https://vimeo.com/269639967







Prescribing Irrigation With Persistence



On the day that the Daily Irrigation Index crosses the established threshold; apply a pre-determined amount that does not bring the area to field capacity but recharges the root zone.

Daily Irrigation Index measurements continue.

When the Index crosses the threshold again, the predetermined amount of water is applied.









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