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Background information

Hanover, April 23, 2018

Hannover Messe 2018, Hall 9, Booth D35

MindSphere supports pitch maintenance in FC Bayern Munich's Allianz Arena

- FC Bayern Greenkeeper App developed by Siemens
- · MindSphere analyzes pitch condition and helps optimize maintenance
- Cost and resource savings alongside optimum play conditions through MindSphere

As a technology partner to soccer giant FC Bayern Munich, at the Hannover Messe 2018 from April 23 to 27, Siemens will be showcasing how the cloud-based open IoT operating system MindSphere supports maintenance of the "sacred turf" in the club's Allianz Arena. The application will be featured in the MindSphere Lounge using the example of an actual section of lawn, which can be watered, fertilized and maintained on an automated basis. Using IoT sensors, all the relevant data is captured and transferred to MindSphere, which collects, saves and evaluates it and then transfers it to an app which enables the greenkeeper to selectively control optimized care of the turf.

The demands made on the pitch in any football stadium are enormous – and the conditions are complex. The stands create irregular shadows on the surface. Some sections are exposed to wind and rain, others are not. The challenge faced by the greenkeeper is to maintain an even, perfectly green playing surface to enable the players to achieve the peak of performance. MindSphere supports the operators of the Allianz Arena in Munich by enabling fast, informed decisions about the best treatment to keep the pitch in tip-top condition. Sensors gather data about the condition of the turf once a minute and transfer it to MindSphere, where the data is analyzed using specially designed algorithms, and finally made available by the MindSphere App in the form of recommended actions. By integrating additional data sources such as weather forecasts and messaging services, MindSphere helps to

predict and so prevent mildew, mold fungus and other diseases which commonly affect grass, presenting all the relevant information in clearly arranged diagrams. This is how MindSphere also enables the club to save costs and resources, helping to create perfect conditions for players to reach their optimum performance on the pitch.

More information about the partnership between FC Bayern Munich and Siemens is available at www.siemens.com/fcbayern

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Siemens AG (Berlin and Munich) is a global technology powerhouse that has stood for engineering excellence, innovation, quality, reliability and internationality for 170 years. The company is active around the globe, focusing on the areas of electrification, automation and digitalization. One of the world's largest producers of energy-efficient, resource-saving technologies, Siemens is a leading supplier of efficient power generation and power transmission solutions and a pioneer in infrastructure solutions as well as automation, drive and software solutions for industry. With its publicly listed subsidiary Siemens Healthineers AG, the company is also a leading provider of medical imaging equipment – such as computed tomography and magnetic resonance imaging systems – and a leader in laboratory diagnostics as well as clinical IT. In fiscal 2017, which ended on September 30, 2017, Siemens generated revenue of €3.0 billion and net income of €6.2 billion. At the end of September 2017, the company had around 377,000 employees worldwide. Further information is available on the Internet at www.siemens.com.