an Internet of Things (IoT) idea

Facility Management

The FieldSports Inc. manages 10 indoor fields and 24 outdoor fields at one facility that is used weekly by nearly 2,000 participants (ages 5 – 80).

Each day the indoor field conditions must be checked for any deficiencies in the turf, proper lighting, temperature control, air quality (clean air filters?), and trash can status (full, overflowing, empty).

Each day the outdoor field conditions must be checked for any lighting issues, wet conditions, ponding, condition of the lines, condition of the goals and nets, temperature control, and trash can status (full, overflowing, empty).

To maintain the current facility all of the above conditions are checked several times per day by humans with a manual checklist.

Improvements with IoT:

A. Indoor
   a. Cameras can be installed to view all of the turf, scanning for foreign objects or defects – alerts would be sent to the control center for any anomalies.
   b. Sensors on all of the lights can be installed to monitor if the lights are all working properly
   c. The temperature control can be monitored at each field, maintaining the proper temperature.
   d. Humidity can be monitored and alerts sent to a humidity control system to keep it under control.
   e. Air filter sensors can be installed to keep the air clean. Filter change can be monitored.
   f. Sensors inside the trash cans can indicate fill level of the container and alert management with a trash container empty request
   g. Sensors on the ceiling can alert the control center if the goals are not in the correct place.

B. Outdoor
   a. Cameras can be installed to view all of the fields, scanning for foreign objects or defects.
      i. For the outdoor fields, drones can be deployed hourly to scan the fields for foreign objects or puddles. The drones would also assess the sharpness of the field lines and alert if the Lines would need to be re-painted. Drones would further assess the condition of the nets by sending back pictures of the net from the front, overhead and rear views and these pictures would be scanned for any anomalies. If the nets have become untied or have holes in them the management would be alerted.
   b. Sensors on all of the lights can be installed to monitor if the lights are all working properly and are on - only under less than the brightest sunlight conditions or a predetermined brightness level.
   c. The temperature control can be monitored at each field and monitoring wind conditions or calm would allow for data to be sent back to the control center for immediate action.
   d. Sensors inside the trash cans can indicate fill level of the container and alert management with a trash container empty request
   e. Sensors can be installed to check on the height of the grass to determine when mowing is needed.

By implementing the IoT, the FieldSports Inc will experience improved business outcomes as follows:

I. Labor management – Labor costs can be made more efficient by eliminating the regular checking of the items in the facility (fields, trash cans, etc) but instead replacing the manual checks with the items listed above in A and B. Reports can be generated and correlations about field usage would be obvious to improve labor scheduling (ie trash removal 4 hours after a major tournament begins and then every three hours after that for the duration).

II. High quality facilities – customers are more likely to return to a properly run facility with everything working and the trash under control. By implementing the above IoT measures the management can save money in the long run and realize increased revenues by return business.

III. Optimize the field time – if there are no deficiencies with the fields they can be rented out continuously. If a field is in disrepair that is lost revenue.

IV. Safer, cleaner fields for all patrons. This will improve business long term.

The improvements with the IoT can be quantified by checking the revenue of the facility before these changes are made and one year after (assuming proper accounting measures are in place for field rental, payroll, labor hours, etc.)