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9/30/16

Smart Calendar System Level Functional Requirements

Device Description

An Internet of Things Smart Calendar that organizes a collection of input connections and uses the information to display data as well as send alerts.

The smart calendar will display the professor's calendar as well as advertisements on an interactive monitor outside his room. Sensors will be used to recognize when students are nearby for tracking purposes. There will be a feature to leave messages from the calendar.

Inputs

- Information from the Internet via a wired connection
    - Google Calendar HTML data of Dr. Malinowski's calendar
    - GPS data tracking packets sent from an app on Dr. Malinowski's phone
- Motion sensor data from multiple attached sensors to detect people walking by or stopping in front of the calendar
- Touch screen monitor inputs for interactivity for people stopping at the calendar
    - Interactivity is limited to looking at calendar, opting to leave a message, or scrolling through advertisements for courses for next semester
- Keyless entry communication (possibly from an app over the Internet) for Dr. Malinowski to open his office door
- Mini USB keyboard, software keyboard, or USB microphone for people to leave a message for Dr. Malinowski to see later
- Sensor to detect if door is open
- Conventional 120V power cable to power device and sensors

Outputs

- HDMI or USB connection to visual display on monitor to display calendar or advertisements
- Information to the Internet via a wired connection
    - Send email or text alert if special cases are met
        - Smart Calendar has noticed student is waiting and office hours are concurrent or Dr. Malinowski is on campus
    - Send or store recorded messages to online database
    - Send tracking data to online database
- Wired connection to mechanical door lock system*

*May not be implemented; permission has been denied.

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Modes of Operation

- Low Power: Device is in a power saving mode, display is off, and all inputs are not being read

  For power saving when nobody is around to look at the calendar overnight

- Startup: Operating system loaded, GUI loaded in kiosk mode, display is off, and all inputs are not being read

  For loading features out of Low Power mode into Powered On mode, device could automatically enter Startup from Low Power based on default criteria like a given time of day

- Powered On: Actively retrieve all inputs, display calendar on monitor, and decide if to send alerts

  For implementing all designated Smart Calendar features

- Shutting Down: Send stored tracking data to the internet, display is off, and all inputs are not being read

  For stopping all features and going to Low Power mode from Powered On mode, device could automatically enter Shutting Down from Powered On based on default criteria like a given time of day