SpinBit: What's your count?

Katie Kemp, Isaac Perry, Adam Ryman

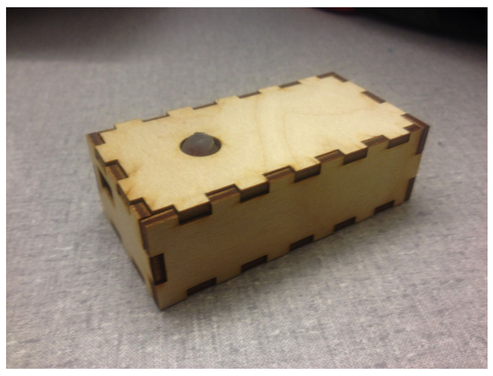
UNIVERSITY OF WASHINGTON
ELECTRICAL ENGINEERING

University of Washington Computer Science & Engineering

Problem:

Fitness devices, such as the fit bit, have become quite popular. This popularity demonstrates a desire to quantify physical activity. Currently the devices on the market measure little more than a simple pedometer. This works well for activities that are based on running but not for activities based on other modes of movement. Dancing is a popular physical activity and some methods of dancing in particular are rooted in spinning or twirling. Currently there is no fitness device that is designed to quantify spinning as it relates to dancing.

Photo source: https://www.theportlandcollection.com/contra-dancing/



Introducing SpinBit:

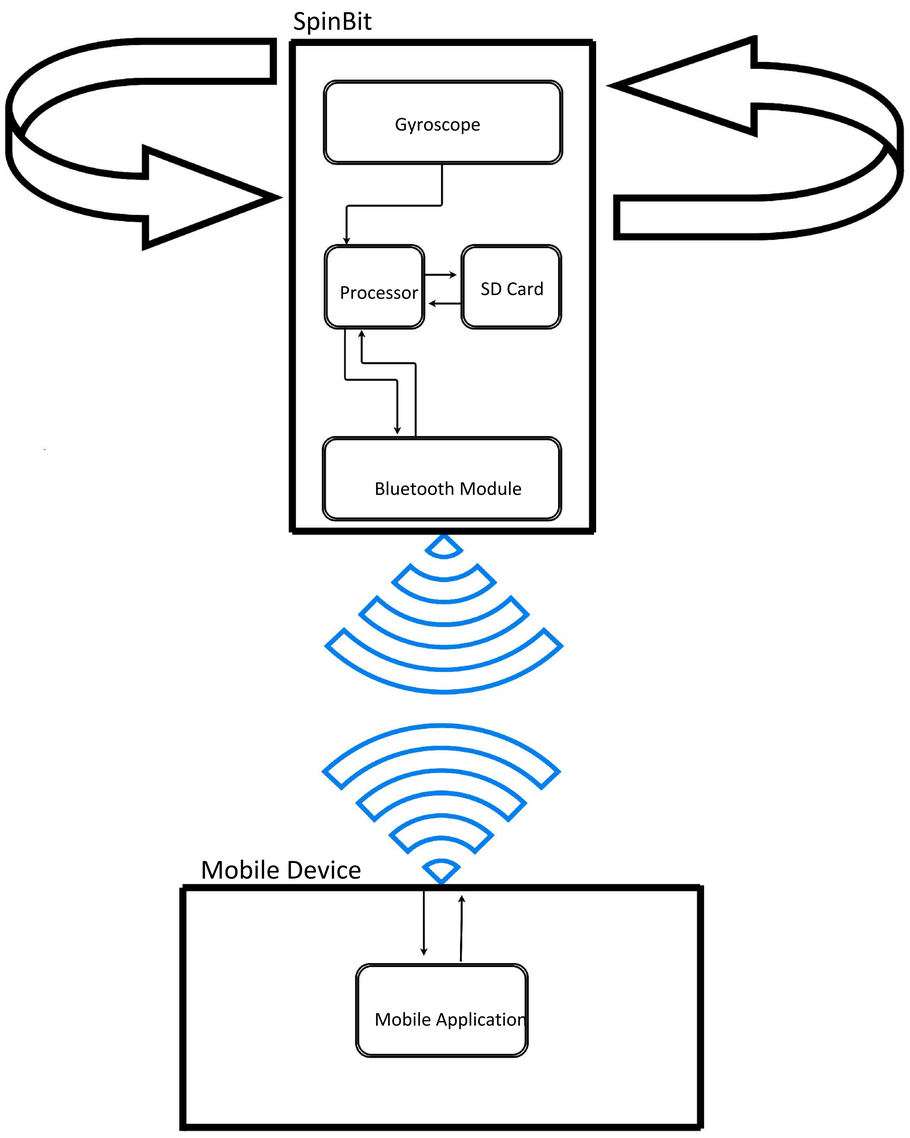
SpinBit is a fitness device specifically targeted for dancers. The device captures the rotations of your body and reports the intensity of your spinning. The accompanying mobile application is used to manage and view your spinning data. This gives you a new insight to your dancing, track trends over time and compete with your friends.

What it does:

- Locally records relative times between users spins
- Connects to mobile device via bluetooth to transfer data
- Mobile application allows for user to display spin data

How you use it:

- Affix SpinBit to waist using clip, with long side pointing down
- Turn device on and press the button to start recording a spin session
- After finished recording spin session, press button again
- While device is on, the mobile application may be used to request spin sessions
- Navigate to sessions on mobile application to view visualizations of past spin sessions



How it works:

- On record session initiation, SpinBit samples raw gyroscope angular velocity data
- Angular velocity is processed in real time to determine "spin events"
- "Spin events" are recorded with relative time between events
- In idle mode, mobile device can request spin session data via bluetooth
- Spin session data is transferred via bluetooth
- Mobile application stores data and allows the user to visualize it.

Looking forward:

Within this summer, we plan to release a crowd funding campaign to raise funding to release SpinBit to Seattle's contra dancers. Using skills learned during this capstone, we plan to:

- Drastically reduce device size by using smaller battery, alternative storage hardware, stacked bluetooth/processor, and improved PCB layout
- Add additional app functionality such as, alternative data visualizations, sharing, and device configurations