Digitisation of a Physical Task Board

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PROPOSAL

A task board has 2 main uses, sharing relevant project information with team members[1], and a guide to see where work is lacking and can be improved [2]. There is evidence to suggest that teamwork and communication suffers when digital boards are used instead of physical boards [3], with there also being the benefit of more productivity, learning and motivation in co-located teams, most likely the reason why co-location is recommended for scrum [4]. For this reason I wish to keep the physical board, but allow for the benefits of a digital board such as tracking previous board states, automated stats and analytics, and remote access, without the extra administration associated with keeping both boards up to date [3].

The plan for this project is to digitise a physical task board. The users will use a physical task board to create and update tasks and a Raspberry Pi with a camera to capture images of the board throughout the day. By utilising "OpenCV", handwriting recognition will be used to replicate the board in a digital form. The goal is not to integrate with any existing agile software such as Jira since complications would arise if the tasks are updated digitally. By using character recognition it would also be possible to have the configuration of the software e.g. photo frequency or column limits changeable on the physical board itself.

There are a couple of tools that exist with similar goals of synchronising a physical and digital task board. Firstly, the multi-touch table task board [5] combines both the tactile nature of moving physical tasks and the easy distribution for co-located teams of a digital board. This solution, however is both expensive and a screen is unable to mimic the full tactile feeling of writing on a physical post-it note and moving it around. The second tool is called FlowKaizen [2]. FlowKaizen requires the user to print off QR codes, attach them to tasks, take a daily photo of the task board and upload it to the software. Metrics are then generated to analyse the team's effectiveness. My artefact aims to address the issues of these existing methods such as expense, extra administration work and lack of intuitiveness. This will be done by using relatively cheap components and by allowing the user to write up new tasks like a standard physical board without having to print out a QR code each time. It will also be fully automated once set up, the photos will be taken by the Raspberry Pi and sent through the software to recreate the board and generate the desired metrics.

Other tools exist with regards to task boards. The "dBoard" [6], is an interface which overlays a task board as well as users in a video call. This is aimed at distributed working teams who all need to update the status of the board, something a physical board can't offer in its current form. AR is another form a digital task board can take trying to offer some of the benefits of a physical board, however there are issues such as expense, the faff of putting on and removing a headset and eye strain from trying to focus on the AR visuals and the physical environment [7].

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